



ASSOCIATION OF DATA PROCESSING
SERVICES ORGANIZATIONS

COMPUTER SERVICES INDUSTRY
1978

INPUT

ABOUT INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications, and office products and services.

The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients' needs. Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Professional staff have, on average, nearly 20 years experience in their areas of specialization. Most have held senior positions in operations, management. This expertise enables practical solutions to complex problems.

Formed in 1974, INPUT is a leading international consulting firm. It includes over 100 of the world's most technically advanced

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ABOUT ADAPSO

The Association of Data Processing Service Organizations (ADAPSO), founded in 1961, is a non-profit business organization that is committed to meet the needs of the multi-billion dollar computer services industry. Members represent all phases of the industry—data centers, software services and products, timesharing and facility management companies. Corporate members range from larger publicly-owned companies, chains and conglomerates with both national and international operations to smaller companies serving local markets or specialty segments of the industry.

The ADAPSO program appeals to both large and small companies, and includes the full-range of educational, legislative, informational and management programs that can be expected from an aggressive association.

ADAPSO's programs are designed to protect the computer services industry from unlawful and unwise governmental legislation—while helping to establish standards and management practices. As the industry is dedicated to identifying the customer as being professional, to the financial growth and stability and to support a vigorous, independent computer services industry.

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ASSOCIATION OF DATA PROCESSING
SERVICES ORGANIZATIONS, INC.
(ADAPSO)

TWELFTH ANNUAL SURVEY
OF
THE COMPUTER SERVICES INDUSTRY

Based On Data For The Year 1977

Published JULY 1978

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Dear Reader:

ADAPSO and INPUT are pleased to present the 12th Annual Report on the Computer Services Industry. This report is organized to present an accurate, understandable and timely reference source for the Computer Services Industry.

This year's survey is based upon an unprecedented industry response of 309 public and private companies representing a total of 3,000 companies that comprise the total U.S. Computer Services Industry.

The principal objective of this report is to be the authoritative statement of historical computer services industry performance with regard to revenues and profit margins. In order to further the understanding of the computer services industry, the report delves into major trends and strategies such as specialization, mini/microcomputer impact, and international expansion for the processing, software product and professional services firms that comprise our industry.

The report will be of primary interest to computer services company management, financial analysts, investment managers, research firms, the media, shareholders and employees of computer service companies and others that have a desire to see a quantification of the performance of the industry.

This year, for the first time, a reader survey reply form has been incorporated as the last page of the report. Your cooperation in completing this survey will enable ADAPSO to meet your high standards for clarity, objectivity, and acceptance.

INPUT forecasts a compound annual growth rate of 17% over the next five years for the computer services industry, as new market opportunities continue to become available to use high value added, full service solutions to user's computer-based needs. Computer service vendors are growing in size, resources and professional competence and are well positioned to meet this challenge.

Jerome A. Chessler
Chairman, ADAPSO Research &
Statistics Committee

1978 ANNUAL ADAPSO REPORT

THE COMPUTER SERVICES INDUSTRY

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I INTRODUCTION

I INTRODUCTION

- This annual report of the computer services industry has been prepared by INPUT under a commission granted by the Association of Data Processing Service Organizations (ADAPSO). It is designed for use by industry management and financial analysts.
 - ADAPSO consists of over 370 member companies and represents the interests of the computer services industry in areas such as industry statistics, legal representation, and communications to the financial community.
 - INPUT is a leading business consulting and market research company which specializes in the information processing industry. INPUT has studied the computer services industry in-depth since 1974 and maintains several ongoing consulting programs for the industry.
- This twelfth report differs from earlier reports in several important respects.
 - As a result of an intensive data gathering effort, it is based on a much larger response from participating companies. Respondents account for 38% of total industry revenues.

- The report provides, for the first time, a separate analysis of both software companies and professional services companies; these were previously combined.
 - Also for the first time, the report analyzes separately processing companies with revenues over \$25 million per year. This recognizes the unique characteristics of this significant and growing category.
 - The report includes a separate analysis of each of ten categories of companies.
 - The Appendix contains extensive industry data which allows comparisons between industry segments.
 - A special questionnaire is included as the final page of the report. Users of the report are requested to return it to ADAPSO so future reports can benefit from user comments.
- The computer services industry adds value to computer hardware and communications resources to serve the needs of the end user. The economic role of this complementary services industry is to add value to the computer hardware utility by integrating into the service people, expertise, products, distribution networks, and education.
- This report excludes the computer services revenues of hardware manufacturers who offer services solely to support the use of the hardware manufactured by them.
 - Definitions of terms used in the report are incorporated where appropriate in the text. The questionnaire contained at the end of the report includes the definitions provided to respondents.
 - Revenues are segmented by type of company - processing services, software products or professional services - based on the dominant source of revenues for each company. This facilitates comparison between types of companies on parameters such as expenditures,

industry sector emphasis, and type of service offered. An exception is in the section dealing with total industry sector markets and types of service, where weighted averages across company types were used.

- Profits analyzed in the report are presented as before taxes and extraordinary items and relate to available U.S. revenues.

II EXECUTIVE SUMMARY

II EXECUTIVE SUMMARY

A. COMPUTER SERVICES MARKET PROJECTIONS AND FORECASTS

- Total available U.S. computer services revenues in 1977 were approximately \$6.3 billion as determined by this study and shown in Exhibit II-1. Adding captive U.S. revenues of \$0.4 billion and non-U.S. revenues of \$0.3 billion, the total revenues of U.S. computer services companies in 1977 were \$7.0 billion. The market projections were arrived at as follows:
 - For the company size categories under \$10 million, the results were projected from 273 survey responses. Based on statistical analysis, the \$3.1 billion revenues for all companies in these categories is accurate to within $\pm 7\%$.
 - For the company size category over \$10 million, the 79 companies were individually identified and their revenues examined. Data from the survey, publicly available data, and data from INPUT's files were included. The \$3.9 billion revenues for these categories is considered accurate to within $\pm 5\%$.

- The 1977 figure represents a 19% growth over reported available 1976 revenues of \$5.3 billion, as detailed in the 1977 ADAPSO Annual Report of the Computer Services Industry.
- The 1976 to 1977 revenue growth rates in Exhibit II-1 are weighted averages from respondents. They are higher than the industry average of 19% because:
 - Growth through acquisition is factored into respondent's forecasts; acquisitions in fact do not have a net impact on annual industry totals.
 - Many respondents, especially the leading companies, look to increase their market share at the expense of other companies. Most leading companies responded to the survey and tend to expect higher than average growth rates.
 - Responding companies are likely to be more optimistic than the universe of computer services companies.
 - Even with the above cautions, the magnitude of the respondents reported 1977 growth of 28% makes the 19% estimate of actual growth for the total industry conservative. Leading public companies, as described in Section VI of this report, reported an average rate of 19%.
- The size of the 1977 market and the projected rate of growth are quite similar between 1978 ADAPSO survey results and INPUT's earlier 1977 forecasts. They estimate the 1977 market at \$7.0 billion and \$6.9 billion respectively. With regard to growth, ADAPSO respondents and INPUT estimate 1977-1982 growth rates of 17% and 16% respectively. These result in approximate 1982 market sizes of \$15.3 billion and \$14.5 billion respectively, as shown in Exhibit II-2.

EXHIBIT II-I

U.S. COMPUTER SERVICES INDUSTRY 1977 PERFORMANCE SUMMARY

TYPE / SIZE OF COMPANIES	NUMBER OF COMPANIES	1977 AVAILABLE U.S. REVENUES	REPORTED (1) AVERAGE GROWTH 1976 TO 1977	GROSS PROFIT	
				(2) \$ BILLIONS	PERCENTAGE OF TOTAL REVENUE (3)
PROCESSING SERVICES					
> \$25 MILLION	30	\$2.2	26%	\$0.27	12.0%
\$10-25 MILLION	22	0.3	35	0.03	10.1
\$2-10 MILLION	230	1.0	28	0.10	9.9
< \$2 MILLION	1,660	1.2	20	0.13	11.0
SUBTOTAL (2)	2,000	\$4.7	27%	\$0.53	11.3%
SOFTWARE SERVICES					
> \$10 MILLION	8	\$0.1	29%	\$0.01	8.5%
\$2-10 MILLION	50	0.2	52	0.04	19.9
< \$2 MILLION	560	0.3	40	0.03	11.2
SUBTOTAL (2)	600	\$0.6	36%	\$0.08	14.3%
PROFESSIONAL SERVICES					
> \$10 MILLION	7	\$0.6	26%	\$0.06	9.3%
\$2-10 MILLION	50	0.3	46	0.03	9.5
< \$2 MILLION	362	0.1	33	0.01	11.8
SUBTOTAL (2)	400	\$1.0	29%	\$0.10	10.0%
TOTAL (2)	3,000	\$6.3	28%	\$0.71	11.3%

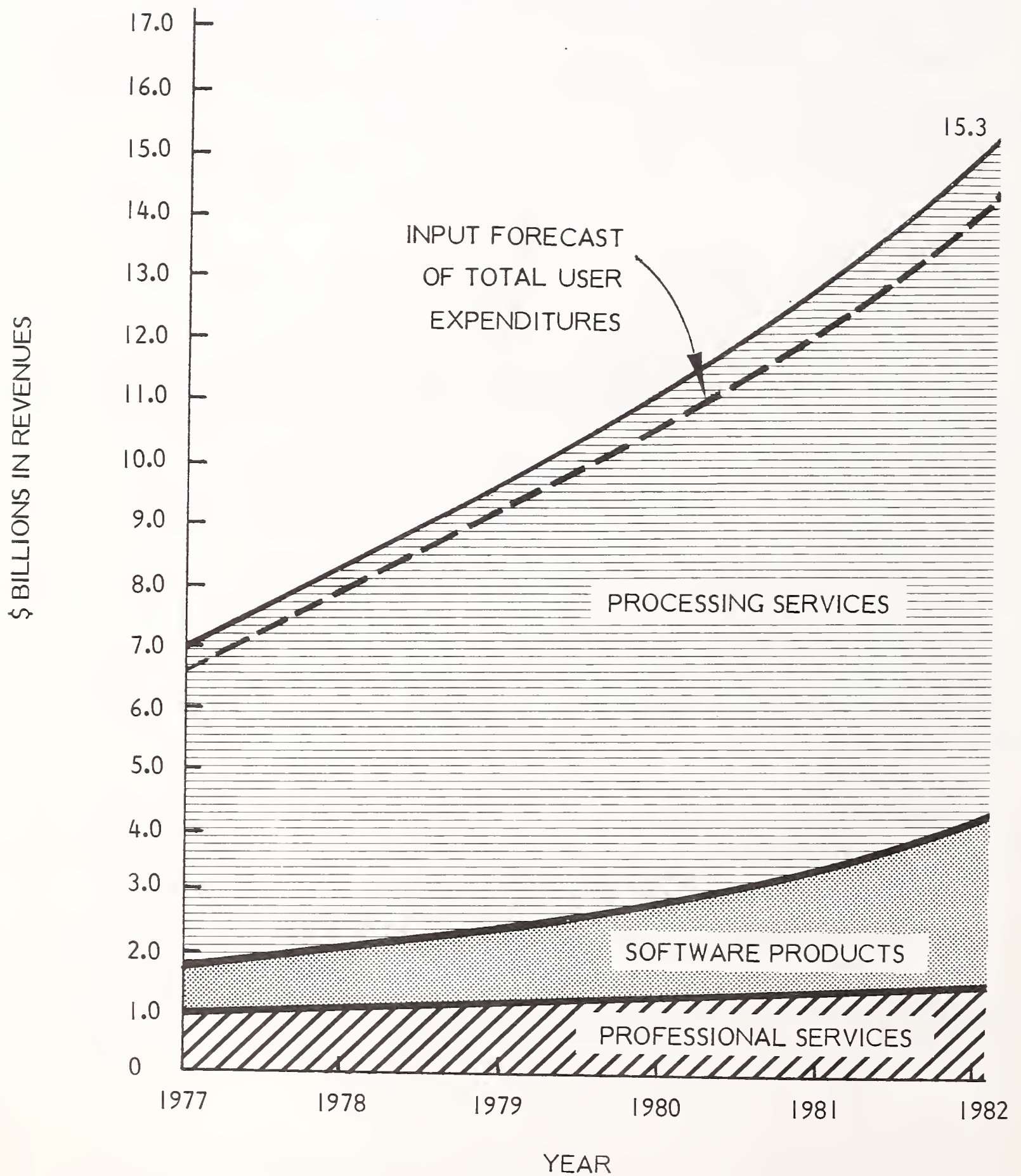
(1) BASED ON WEIGHTED AVERAGES OF SURVEY RESPONDENTS

(2) ROUNDED

(3) GROSS PROFIT BEFORE TAXES AND EXTRAORDINARY ITEMS BASED ON AVAILABLE U.S. REVENUES ONLY.

EXHIBIT II-2

GROWTH OF COMPUTER SERVICES INDUSTRY BASED ON RESPONSES TO 1978 ADAPSO SURVEY AND INPUT 1977 FORECAST



B. COMPARISON OF COMPUTER SERVICES MARKET GROWTH AND PROFITABILITY WITH THOSE OF COMPUTER EQUIPMENT

- Respondents actually exceeded their 1977 growth forecasts as shown in Exhibit II-3 (values are somewhat overstated for reasons mentioned earlier).
- Respondents to the survey expect the 17% rate to continue or increase slightly through 1983, as shown in Exhibit II-3.
- In comparison, the revenue growth for 1976 to 1977 for major computer equipment companies was as follows:
 - IBM, 11%.
 - Selected mainframe companies (Burroughs, NCR, Honeywell Information Systems, and Univac), 8%.
 - Selected minicomputer companies (Digital Equipment Corporation, Data General, Computer Automation, and Microdata), 43%.
- This last group only accounts for approximately one-tenth of the total U.S. computer equipment shipments, meaning that the weighted average growth of shipments for equipment is significantly less than the growth of services. Some individual computer services are growing as fast or faster than the fastest growing computer equipment markets.
- INPUT's projections of computer equipment growth range from 8% to 12% depending largely on the state of the general economy.
 - The continuing improvement in the price/performance of all types of computer equipment is a major factor in this forecast. Overall performance of computer mainframes has been improving at a compound rate of 47% per year. This performance improvement is offset

EXHIBIT II-3

COMPUTER SERVICES COMPANIES' GROWTH PROJECTIONS

1977 TO 1983

TYPE OF COMPANY	RESPONDENTS TO SURVEY			
	FORECAST 1976 TO 1977	ACTUAL * 1976 TO 1977	FORECAST 1977 TO 1978	FORECAST FOR NEXT 5 YEARS
PROCESSING SERVICES	16.4%	27.0%	19.5%	17.4%
SOFTWARE PRODUCTS	27.2	36.0	22.6	29.1
PROFESSIONAL SERVICES	20.1	29.0	9.9	9.2
WEIGHTED AVERAGE ALL COMPANIES	17.2%	28.0%	18.8%	17.1%

*Actual reported growth includes sources other than U.S. available revenues, such as acquisitions and revenues from foreign expansion. Therefore, these growth rates are overstated when compared to the actual 1976 to 1977 growth estimated to have been 19% for the total industry.

by inflationary pressures on labor, material and other costs but still results in a net price/performance improvement.

- This means that 47% more computing power must be installed each year to net a dollar of equipment revenues.
- As shown in Exhibit II-4, profits before taxes for responding computer services companies in 1977 averaged 11.3%, compared with the 10.8% average reported for 1976. It is notable that 1977 profit is consistent across all size categories.
- These figures compare with computer equipment vendors for profit before taxes and extraordinary items as a percent of revenue for 1976 and 1977 as follows:
 - IBM, 28% in both years.
 - Selected mainframe companies (Burroughs, NCR, Honeywell Information Systems, and Univac), 10% in 1976; 9.5% in 1977.
 - Selected minicomputer companies (DEC, Data General, General Automation, and Microdata), 17.5% in 1976; 19.5% in 1977.
- In conclusion, profits in computer services are comparable to the average of equipment companies other than IBM, and average overall revenue growth is greater.

C. IMPACT AND OPPORTUNITIES FROM MINICOMPUTERS

I. EFFECT ON COMPUTER SERVICES COMPANIES

- The value of minicomputer system shipments is expected to increase at over 30% per year between now and 1982; over 1 million such systems will be installed by the end of that year.

EXHIBIT II-4

COMPUTER SERVICES COMPANIES' WEIGHTED AVERAGE PROFITABILITY, 1977

PROFITABILITY TYPE	SIZE IN ANNUAL REVENUES (\$ MILLION)			WEIGHTED AVERAGE
	LESS THAN \$2M	\$2-10M	GREATER THAN \$10M	
PROCESSING SERVICES	11.0%	9.9%	11.8% ⁽¹⁾	11.3%
SOFTWARE PRODUCTS	11.2	19.9	8.5	14.3
PROFESSIONAL SERVICES	11.8	9.5	9.3	10.0
WEIGHTED AVERAGE	11.1%	11.2%	11.3%	11.3%

(1) PROCESSING SERVICES COMPANIES IN THIS CATEGORY REPORTED PROFITS ARE AS FOLLOWS:

COMPANIES WITH REVENUES OF \$10-25 MILLION, \$10.1%
COMPANIES WITH REVENUES OVER \$25 MILLION, \$12.0%

- The opportunity for software products will expand significantly for standalone and distributed data processing systems.
- Professional services companies will benefit because of the custom programming needs associated with these installations (packages will not be available to satisfy the majority of user requirements as they stand). Also, training, education, evaluation, and computer consulting opportunities will proliferate.
- Services companies can supply "mini-facilities management" providing all the programming, education, training, support, network integration, and application upgrading for local, minicomputer/small business computer users.
- All computer services companies can participate in the turnkey systems market. This should be approached, however, with great care as the risks in many cases outweigh the benefits.
- On average, respondents felt about 25% of their business was vulnerable to replacement by minicomputers. This proportion is higher for processing services companies, particularly small, general business companies.
 - New minicomputer systems and software will increase the pressure, driving the level at which users will consider a small computer down from \$1,000 per month to less than \$500 per month for processing services.
 - Particular processing users which are susceptible to a small computer are those single-site, stable establishments in large industries performing standard business applications on a batch services basis, or general "timesharing."

2. CURRENT ACTIVITIES BY COMPUTER SERVICES COMPANIES

- Computer services companies are responding positively to mini-microcomputer development.
 - Over half the respondents expect to have installed minicomputers at customer sites by 1979. The 309 respondents expect to have over 7,500 installations by that time.
 - Processing services companies are using the decline in price and increase in capability of terminals to replace batch business by remote computer services, particularly remote data entry, thus making their services more responsive and competitive with standalone small computers.
 - Software products and professional services companies in most cases view the developments very positively. "That is our business" many of them are saying.
- Increased specialization and concentration on applications not easily processed on a small computer are also tactics being adopted by processing services companies which reduce the "threat" from small computers.
- In the remote computing services area, recent announcements by National CSS, ADP, Keydata, and others in providing user-site computers linked into their networks are a recognition of the opportunity new hardware economics and communications are providing.
 - The in-house timesharing market, at which these systems are targeted, is growing very rapidly and this is a new, not merely replacement, market for computer services vendors.
 - By implementing proven software on minicomputers in this manner, these vendors have brought effective software to one segment of the minicomputer market.

3. RELATIONSHIP TO TRENDS IN DISTRIBUTED DATA PROCESSING

- Distributed data processing is not here yet. Its major impact is expected to be after 1980. In addition, the term is being over-used as "management information systems" was in the late 1960s.
- However, as INPUT reported last year, "By providing the communications networks and software support for distributed small computers, computer services companies will be able to compete on more favorable terms with in-house EDP installations in larger companies."
- In addition, services companies are probably the only companies that are now capable of installing, operating, and fully supporting turnkey DDP systems, as demonstrated by recent offerings from ADP, National CSS and similar companies.
- In the context of DDP, the role of the EDP manager and the degree of data processing centralization are changing. INPUT believes that many data processing "empires" will crumble in the 1980s.
- At the same time, an increasing pressure is being placed on EDP managers. For example, the number of end users accessing computers directly may increase by an order of magnitude in the next five years.
- In this environment computer services companies will be able to use the leverage they have in that they better understand the needs of end users than do computer and communications vendors. They can increasingly work with EDP managers and end users.
- In summary, the reduction of hardware costs and concomitant proliferation of small systems will have a net positive impact on computer services markets.
 - It will "weed out" weaker and obsolete services and their suppliers, if they don't change.

- The "solution" is the "value added" that computer services companies offer; the networks, mini/midi/maxicomputer mixes, systems software and support, are merely the delivery vehicles for these solutions.

D. RELATIONSHIPS BETWEEN PROFIT AND KEY PARAMETERS

- The following are taken from quartile analyses and regression analyses of the data from the 309 respondents to the survey.

1. REVENUE GROWTH

- Faster growing companies tend to be more profitable with the relationship strongest among processing services companies.
- Older companies tend to grow slower:
 - The average processing services company declines an average of 1% in growth with each year of age.
 - The average software products company declines 3% in growth with each year of age.
 - Of course, these statistics include many young companies who are growing from a small revenue base and achieve high growth percentages on relatively small dollar increases in revenue.

2. COMPANY SIZE

- On the average, companies have uniform profitability by size category.
- In the less than \$2 million size category, which had two-thirds of the respondents and was therefore least effected by individual respondents, the

profit ranged from an average of 11.1% to 11.8% across the processing services, software products and professional services categories, reflecting uniformity across company types.

3. BUSINESS MIX BY TYPE OF SERVICE

- Among four categories of services, "Industry Specialty" has the highest profitability and growth relative to "General Business," "Scientific and Engineering," and "Utility." For "Industry Specialty," respondents report:
 - An average 23% growth.
 - An average 12% profitability.
- Systems packages are the most profitable type of service with respondents reporting an average 17.5% profit before taxes and extraordinary items.

4. EXPENDITURE LEVELS AND PATTERNS

- Based on regression analysis done on survey responses:
 - Higher percentages of marketing compensation tend to lead to higher profits.
 - Higher percentages of operations compensation tend to lead to lower profits.
 - Companies with higher percentages of data communications expenditures tend to have higher profits.

E. OPPORTUNITIES FOR PROCESSING SERVICES COMPANIES

- Industry specialized processing is shown by the survey to be the fastest growing and most profitable form of processing services. Two approaches are indentified:
 - Obtain highly industry specialized products.
 - Take generalized product and service capabilities and develop industry specialized marketing and sales strategies.
- These approaches are not mutually exclusive even in the same industry.
- Finance and banking institutions are prime targets for services.
- Incorporating hardware into services offerings expands the market potential: it is another way of delivering the "solution" which is the services "value added." Caution must be exercised since significant success in this area is still unproven and risks are high.
- Non-U.S. markets to be targeted are primarily in Europe, especially for remote computing services.
- Large processing services companies should sell to industries predominately with large companies, while small vendors should concentrate on industries predominately with small companies.
- All vendors should plan to address the problems of medium-sized companies.

F. OPPORTUNITIES FOR SOFTWARE PRODUCTS COMPANIES

- System packages are far more profitable than applications packages. This results from two factors: replication of conditions is far easier for systems

packages than it is for applications packages, also, many of the systems packages are older and are in a very profitable stage in their life cycle.

- Overseas markets for software products contribute almost 20% of U.S. vendor revenues. They are prime targets for all sizes of software products companies.
- The number of software companies obtaining significant revenues through processing services vendors is increasing. All software products companies should consider this source of marketing and sales for their products.
- Software for minicomputers in a standalone and a DDP environment will obviously be a major opportunity.
- There will be an opportunity for providing software directly to the non-technical end users who will proliferate in the next 5 years.
- Software products should be developed using new applications methods, DBMS, and implementation languages and should incorporate them into the operational system.
- In many cases, there is an opportunity for new software, not simply imbellishments of the old. Particular attention in this environment should be paid to using new hardware/firmware/software integration.

G. OPPORTUNITIES FOR PROFESSIONAL SERVICES COMPANIES

- Distributed data processing will be the subject of numerous EDP evaluation, planning and development contracts.

- Integration of new technology, applications development techniques, and communications vehicles will provide opportunity for professional services even to the largest companies. Qualified people will continue to be in short supply with the shortage growing through the end of the decade.
- Methodologies and techniques for planning, training, etc., will provide numerous opportunities.
- Finance and banking, and discrete and process manufacturing, are expanding industry markets for professional services.
- Financial systems emerge from the survey as prime targets.
- Processing services and software products companies will increasingly offer professional services in conjunction with their specialties.
- Larger companies have industry opportunities in federal, state and local government. Small companies should concentrate geographically and by specialized function.
- On average, government is a declining opportunity.
- "Mini-FM" is an emerging opportunity for small companies; this entails managing a small computer site for a client.

III COMPUTER SERVICES
INDUSTRY PERFORMANCE

III COMPUTER SERVICES INDUSTRY PERFORMANCE

A. HISTORIC PERFORMANCE

- The strong revenue and profit performance of the computer services industry in 1977 follows a good year in 1976 as shown in Exhibit III-1.
 - Years prior to 1976 were analyzed by Rick Crandall, President of ADAPSO, in his address of February 8, 1978. Key points included:
 - The computer services industry, in those key processing services areas where data is available, has had an unbroken history of annual revenue growth of at least 15% since 1967.
 - The industry is evidencing less vulnerability to recession as it matures.
 - In this context, 1977 can be viewed as another successful year in a series of successful years. The maintenance of high growth rate on a growing base of business, combined with continued profitability is particularly significant.

EXHIBIT III-I

HISTORIC GROWTH OF COMPUTER SERVICES (TOTAL REVENUES - INCLUDES CAPTIVE AND NON-U.S.)

REVENUES BY TYPE OF COMPANY	1976 (\$ BILLION)	1977 (\$ BILLION)	% GROWTH 1976 TO 1977
PROCESSING SERVICES ⁽¹⁾	\$ 4.0	\$ 4.7	17.5%
SOFTWARE PRODUCTS ⁽¹⁾	0.6	0.6	} 23.0 ⁽²⁾
PROFESSIONAL SERVICES ⁽¹⁾	0.7	1.0	
TOTAL	\$ 5.3	\$ 6.3	19.0%
% PROFIT	10.8%	11.3%	

NOTE: (1) In the 1977 ADAPSO report, the category "Facilities Management" was carried separately. In the above figures, it is allocated as follows:

YEAR	FM	PROCESSING	PRFOESSIONAL SERVICES
1976	0.5	0.40	0.10

Facilities Management is discussed in Chapter V of this report.

(2) In the 1977 ADAPSO report, software products and professional services companies were defined differently than in the 1978 report. Therefore, the 1976 and 1977 individual figures are not directly comparable, and the growth rate shown represents the total of the two categories. Growth rates for responding software products companies and professional services companies are contained in the later portion of this section.

B. 1977 GROWTH AND PROFIT PERFORMANCE

- A quartile technique was used to relate growth and profit performance. The total population of respondents was divided into quartiles of decending percentage 1977 profit and percentage 1977 vs. 1976 growth. These were then grouped by type of company and size of company.
 - As shown in Exhibit III-2, companies in the second growth quartile had the highest average profitability.
 - . Processing services companies were an exception in that the fastest growing companies (1st quartile) were also the most profitable; this is particularly significant since processing services companies account for 80% of respondent revenues.
 - . Not only are the fastest growing processing services companies the most profitable, but profitability declines with each declining quartile reinforcing the direct relationship between growth and profit.
- The relationship of profit and growth is reinforced further by the analysis of profit quartiles presented in Exhibit III-3.
 - For the total industry, the most profitable companies have the highest growth.
 - Software products and professional services companies do not follow a clear pattern with growth rates being highest in the second quartile with software products companies and the fourth quartile with professional services companies.

EXHIBIT III-2

QUARTILE ANALYSIS OF RESPONDENTS BY TYPE OF COMPANY - REVENUE GROWTH QUARTILES VS. PROFIT

GROWTH QUARTILES	ALL RESPONDENTS			TYPE OF COMPANIES			NUMBER OF RESPONDENTS IN CATEGORY
				PROCESSING SERVICES	SOFTWARE PRODUCTS	PROFESSIONAL SERVICES	
% GROWTH 1977 VERSUS 1976	% PROFIT	% GROWTH		% PROFIT	% PROFIT	% PROFIT	
		MEDIAN	RANGE				
QUARTILE 1	14%	50%	34-99%	14%	15%	13%	71
QUARTILE 2	15	25	20-33	13	23	17	87
QUARTILE 3	11	15	11-18	11	12	6	50
QUARTILE 4	10	9	(30)-10	8	17	11	79
AVERAGE	12%	-	-	11%	17%	13%	287

NOTE: PERCENTAGE FIGURES ARE STRAIGHT AVERAGES AND ARE NOT WEIGHTED. DUE TO THE TENDENCY OF AVERAGES TO CLUSTER AROUND PARTICULAR VALUES, QUARTILES ARE OF DIFFERENT SIZES BECAUSE PARTICULAR VALUES HAD TO ASSIGNED TO PARTICULAR QUARTILES.
 % PROFIT = AVERAGE % 1977 PROFIT BEFORE TAXES AND EXTRAORDINARY ITEMS REPORTED BY RESPONDENTS
 % GROWTH = MEDIAN % 1977 GROWTH VERSUS 1976 FORECAST BY RESPONDENTS

EXHIBIT III-3

QUARTILE ANALYSIS OF RESPONDENTS BY TYPE OF COMPANY - PROFIT QUARTILES VS. GROWTH

PROFIT QUARTILES	ALL RESPONDENTS			TYPE OF COMPANIES			NUMBER OF RESPONDENTS IN CATEGORY
				PROCESSING SERVICES	SOFTWARE PRODUCTS	PROFESSIONAL SERVICES	
				% GROWTH	% GROWTH	% GROWTH	
% 1977 PROFIT	% GROWTH	MEDIAN	RANGE				
QUARTILE 1	33%	22%	18-80%	29%	40%	40%	69
QUARTILE 2	25	13	11-17	21	44	26	61
QUARTILE 3	27	9	6-10	22	36	39	76
QUARTILE 4	25	3	(23)- 5	12	34	44	81
AVERAGE	28%	-	-	21%	38%	39%	287

NOTE: PERCENTAGE FIGURES ARE STRAIGHT AVERAGES AND ARE NOT WEIGHTED. DUE TO THE TENDENCY OF AVERAGES TO CLUSTER AROUND PARTICULAR VALUES, QUARTILES ARE OF DIFFERENT SIZES BECAUSE PARTICULAR VALUES HAD TO ASSIGNED TO PARTICULAR QUARTILES.

% PROFIT = MEDIAN % 1977 PROFIT BEFORE TAXES AND EXTRAORDINARY ITEMS REPORTED BY RESPONDENTS
% GROWTH = AVERAGE % 1977 GROWTH VERSUS 1976 FORECAST BY RESPONDENTS

- To eliminate the effect of differences between processing services, software products and professional services companies, an analysis was done by size of company across the total sample. Results are presented in Exhibit III-4.
 - With regard to growth, faster growing companies are also most profitable in companies with revenues over \$2 million per year. Within this category, companies with over \$10 million have a consistent pattern of increasing profitability with increasing growth across the four quartiles.
 - With regard to profitability, companies with revenues of \$10 million and under are also the fastest growing. With companies with revenues over \$10 million, the highest growth quartile is the second quartile. This reflects the challenge these largest companies have in maximizing both growth and profitability simultaneously.
- The conclusion of this analysis is that generally faster growing computer services companies are more profitable and vice versa.

C. ANALYSIS BY INDUSTRY SEGMENT

- In the following section, the total industry is analyzed in each of ten segments:
 - Processing companies in 4 categories - annual revenues of less than \$2 million, \$2-10 million, \$10-25 million, and greater than \$25 million. The latter category was added this year because a significant number of processing companies have achieved the \$25 million level and a separate analysis was needed of this critical category of companies.
 - Software product companies in 3 categories - annual revenues of less than \$2 million, \$2-10 million and greater than \$10 million. For the first time software product companies are analyzed separately, not in combination with professional services companies.

EXHIBIT III-4

QUARTILE ANALYSIS OF RESPONDENTS BY SIZE OF COMPANY -

GROWTH VS. PROFIT

% GROWTH 1977 TO 1976	% 1977 PROFIT			% 1977 PROFIT	% GROWTH 1977 VS. 1976		
	SIZE OF COMPANY				SIZE OF COMPANY		
	< \$2M	\$2-10M	> \$10M		< \$2M	\$2-10M	> \$10M
QUARTILE 1	14%	14%	14%	QUARTILE 1	34%	34%	25%
QUARTILE 2	17	11	13	QUARTILE 2	21	26	32
QUARTILE 3	10	13	10	QUARTILE 3	25	32	24
QUARTILE 4	10	8	7	QUARTILE 4	23	18	10
AVERAGE	13%	12%	11%	AVERAGE	26%	28%	24%

NOTE: PERCENTAGE FIGURES ARE STRAIGHT AVERAGES AND ARE NOT WEIGHTED.

- Professional services companies in 3 categories - annual revenues of less than \$2 million, \$2-10 million and greater than \$10 million. This is the first time these companies are analyzed separately and their unique characteristics recognized.

This segmented analysis makes visible significant differences between sizes and types of companies.

- The following section anticipates that the industry user of the report will want to compare the user's company to similar companies with regard to size and type. Therefore, each section is an integrated report. However, in the Appendix tables are included which allow cross comparisons of service mix, industry sector revenues, and expenditures.

I. PROCESSING SERVICES COMPANIES WITH REVENUES LESS THAN \$2 MILLION

- 133 respondents to the survey in this category had 1977 revenues of \$92.2 million or 3.5% of the respondents total.
 - \$9.1 million or 9.9% of survey revenues were captive.
 - \$0.5 million or 4.9% of survey revenues were non-U.S.
 - \$0.2 million were from non-consolidated foreign affiliates.
- 1978 revenues are forecasted by respondents to grow at 20%, greater than the 1977/76 forecast of 15%. Actual 1976 to 1977 growth was 20%.
- Respondents' 1977 profits before taxes and extraordinary items were \$10.2 million or 11.1%. This compares to 11.6% for all responding processing services companies and 11.3% for the total industry. Average (non-weighted) profits were 11.8% indicating that smaller companies in the category had slightly higher profit percentages.

- Respondents represent 8% of the estimated 1,660 U.S. companies in this category. The category comprises 56% of all computer services firms in the U.S.
- Respondents reported:
 - Average revenues in 1977 were \$693,000 per company with a minimum of \$20,000 and a maximum of \$1.9 million.
 - Number of employees was 3,763 with a minimum of one and a maximum of 175.
 - The average number of customers per company was 122, with the 5 largest customers representing 43% of revenues.
- With regard to the mix of services provided, almost 90% of 1977 revenues were concentrated in processing services, as shown in Exhibit III-5.
 - General business revenues are relatively high at 38% of the total. This revenue is considered to be particularly vulnerable to minis, as is discussed in Section IV of this report. (The average general business share for the industry is 22.3% of total revenues.)
 - The largest portion of revenues, 39.5%, is for industry specialty services, also forecasted to grow most rapidly - at 30.5% in 1978 vs. 1977. This high degree of specialization is characteristic of smaller, often newer, firms which are capitalizing on the specific expertise of the founders.
 - Utility services, which include data base management systems services, are forecasted to grow at 30.3%. This forecast indicates that respondents feel the other segments of "utilities" (DBMS, COM, data entry services, etc.) will grow much faster and offset declines in raw time sales.

EXHIBIT III-5

PERCENT OF REVENUES BY TYPE OF SERVICE OF RESPONDING PROCESSING SERVICES COMPANIES WITH REVENUES OF LESS THAN \$2 MILLION

TYPE OF SERVICE	% OF TOTAL REVENUES AVERAGE	ESTIMATED GROWTH 1977 vs 1976 AVERAGE	FORECASTED GROWTH 1978 vs 1977 AVERAGE
Processing Services			
General Business	38.0%	16.7%	18.0%
Scientific and Engineering	2.2	6.7	15.2
Industry Specialty	39.5	41.9	30.5
Utility	9.0	42.4	30.3
Software Products			
Applications Packages	3.8	33.2	28.3
Systems Packages	0.8	6.4	10.0
Professional Services			
Custom/Contract Software	6.0	20.7	22.9
Consulting, Education, Training	0.7	8.3	17.9
TOTAL	100%	-	-

- The remaining 10% of revenues are split between software products and professional services, with respondents anticipating the greatest relative growth in sales of applications packages.
- The distribution of revenues by industry sector reflects the tendency of the smaller services firm to deal with smaller local clients, as shown in Exhibit III-6.
 - The discrete manufacturing and wholesale industries, which have the highest percent, are characterized by large numbers of small establishments. They are the leading sources of revenue to processing services companies with revenues less than \$2 million.
 - Industry concentration is dispersed, with no sector being higher than 14% of the total, and six of the sectors being between 8.7 and 14%.
 - Even though it is a known target of the small business computer, the wholesale sector is viewed as growing in importance to the small processing services vendor.
 - Management is aiming for greater concentration in sectors with current high penetration; these sectors rate highest "yes" responses when vendors were asked if the sector was "growing in importance."
- The expenditures profile shows a relatively higher expenditure for personnel and hardware than is the case in larger processing services companies. As shown in Exhibit III-7:
 - Total personnel compensation is 57.9% of total expenditures, compared with 50.4-51.3% in the larger companies.
 - Hardware expenditures are 24.0% vs. 18.2-22.4% in the larger companies.
 - Data communications costs are lower (2.1% vs. 4.3-8.9%) reflecting the higher concentration of batch processing in the smaller companies.

EXHIBIT III-6

INDUSTRY SECTOR MARKETS OF RESPONDING PROCESSING SERVICES COMPANIES WITH REVENUES OF LESS THAN \$2 MILLION

INDUSTRY SECTOR	% OF 1977 REVENUES		GROWING IN IMPORTANCE NUMBER RESPONDING	
	AVERAGE	RANGE	YES	NO
DISCRETE MANUFACTURING	14.0%	0-100%	34	22
PROCESS MANUFACTURING	9.1	0-92	31	15
TRANSPORTATION	1.9	0-80	8	19
UTILITIES	2.4	0-92	9	18
BANKING AND FINANCE	12.0	0-100	32	15
INSURANCE	4.8	0-100	17	26
MEDICAL	5.7	0-99	25	19
EDUCATION	3.4	0-90	17	23
RETAIL	11.5	0-100	33	20
WHOLESALE	12.8	0-100	39	14
FEDERAL GOVERNMENT	1.0	0-50	4	17
STATE & LOCAL GOVERNMENT	2.6	0-35	17	23
SERVICES (CPAs, ETC.)	8.7	0-100	39	16
OTHER	10.1	0-100	46	18
TOTAL	100.0%	-	351	265

EXHIBIT III-7

EXPENDITURE DISTRIBUTION OF RESPONDING PROCESSING SERVICES COMPANIES WITH REVENUES OF LESS THAN \$2 MILLION

EXPENDITURE	% OF TOTAL 1977 EXPENDITURES	
	AVG.	RANGE
Direct personnel compensation (including salaries, commissions, payroll taxes, etc.)		
Total marketing and sales staff	10.8%	0-81%
Research and applications development	11.0	0-82
Operations	22.4	0-84
Other	8.0	0-55
Personnel-related expenditures (inc. voice-phone, travel & living, office supplies, etc.)	5.7	0-22
Computer System equipment and maintenance (inc. interest, depreciation, property taxes, etc.)	24.0	0-81
Data communications expenditures (inc. interest, depreciation, property taxes, etc.)	2.1	0-20
Freight and postage	1.8	0-13
Payments to third-party software developers.	1.0	0-10
Advertising, promotion, seminars, etc.	2.4	0-20
Facility Operations (rent, utilities, etc.)	7.0	0-50
Other (inc. interest on nonequipment loans, state and federal taxes, etc.)	3.8	0-50
Total	100%	

EXTRAORDINARY GAINS OR LOSSES

	AVG.	RANGE
Extraordinary gains	0.2%	0-20%
Extraordinary losses	(0.8)	(0-30)

- The range of values in the responses is high, partly because the smaller companies do without some of the functions, causing the percentages in the remaining functions to be higher.
- Respondents felt that the impact of mini/microcomputers was the major development in both 1977 and 1978.
 - Over half of the respondents mentioned mini/micros, sometimes with positive and sometimes with negative comment, for example:
 - "The continued growing popularity of minicomputers is increasing the data processing customer base."
 - "In-house computers conversion from service bureaus is our major concern. The cost of minicomputers is becoming more and more attractive to our customers."
 - Many respondents mentioned "inflation" or "recession" as a major development, with the latter getting frequent mention for 1978.
 - Other developments with significant mention were:
 - Distributed processing.
 - IBM actions, particularly through new equipment announcements and price cuts.
 - An increasing shortage of competent personnel with consequent rising personnel costs.
 - A concern about taxes on services.
 - Other interesting comments concerning major 1977 and 1978 developments included:

- . "Many minis will be sold but not adequately supported resulting in an apprehensive marketplace."
 - . Two respondents commented simply "hard winter weather" and "I wish I knew" to the question of significant developments in 1977 and 1978.
- Opportunities for this sector of the industry include:
 - Increased industry specialization to capitalize on the higher growth rates of this type of business and to avoid the heavier impact of mini/micros on general business applications.
 - Incorporation of mini/micros in product offerings.
 - Leveraging technical skills to capitalize on the growing shortage of such skills in in-house installations. One technique is to provide distributed processing capability to smaller users.

2. PROCESSING SERVICES COMPANIES WITH REVENUES OF \$2-10 MILLION

- 46 respondents to the survey in this category had 1977 revenues of \$200.6 million or 7.6% of the respondents total.
 - \$21.8 million or 10.9% of survey revenues were captive.
 - \$1.3 million or 0.7% of revenues were non-U.S.
- 1978 revenues are forecasted by respondents to grow at 23%, greater than the 1977/76 forecast of 18%. 1976 to 1977 revenue growth was 28%.
- 1977 profits before taxes and extraordinary items were \$19.9 million or 9.9%. This compares to 11.6% for all responding processing services companies and 11.3% for the total industry. Average (non-weighted) profits were 10.3% indicating that smaller companies in the category had slightly higher profits.

- Respondents represent 20% of the estimated 230 U.S. companies in this category.
 - The category contains 19.9% of all computer services firms in the U.S.
 - Average revenues in 1977 were \$4.4 million per company with a minimum of \$2.0 and a maximum of \$9.7 million.
 - Average number of employees was 140 with a minimum of 38 and a maximum of 800.
 - The average number of customers per company was 856. This high average was due to several respondents who provided specialized services, one claiming 12,000 customers.
 - The five largest customers represented an average of 30% of total business.
- With regard to type of services offered, almost half of 1977 revenues were in industry specialty as shown in Exhibit III-8.
 - The product mix for this size of processing services company is very similar to processing companies of over \$25 million; differences are that this category is relatively lower in scientific and engineering and higher in applications packages sales.
 - Respondents expect highest growth in industry specialty, utility and applications packages, continuing the excellent 1977 vs. 1976 growth.
- The banking and finance industry sector accounts for 30% of total revenues as shown in Exhibit III-9, reinforcing the high degree of industry specialization.
 - Respondents expect finance and banking, discrete manufacturing, retail and wholesale to continue to grow in importance.

EXHIBIT III-8

PERCENT OF REVENUES BY TYPE OF SERVICE OF RESPONDING PROCESSING SERVICES COMPANIES WITH REVENUES OF \$2 - \$10 MILLION

TYPE OF SERVICE	% OF TOTAL REVENUES AVERAGE	ESTIMATED GROWTH 1977 vs 1976 AVERAGE	FORECASTED GROWTH 1978 vs 1977 AVERAGE
Processing Services			
General Business	27.7%	14.1%	13.1%
Scientific and Engineering	2.7	4.5	4.3
Industry Specialty	49.9	29.2	31.8
Utility	8.5	10.6	5.0
Software Products			
Applications Packages	7.2	20.3	57.9
Systems Packages	0.2	1.7	3.9
Professional Services			
Custom/Contract Software	3.5	10.5	38.9
Consulting, Education, Training	0.3	4.0	13.8
TOTAL	100%	-	-

EXHIBIT III-9

EXPENDITURE DISTRIBUTION OF RESPONDING PROCESSING SERVICES COMPANIES WITH REVENUES OF \$2 - 10 MILLION

INDUSTRY SECTOR	% OF 1977 REVENUES		GROWING IN IMPORTANCE NUMBER RESPONDING	
	AVERAGE	RANGE	YES	NO
DISCRETE MANUFACTURING	9.9%	0-100%	11	3
PROCESS MANUFACTURING	5.5	0-100	4	8
TRANSPORTATION	0.7	0-8	1	9
UTILITIES	2.7	0-46	4	7
BANKING AND FINANCE	30.0	0-100	21	6
INSURANCE	12.0	0-100	8	7
MEDICAL	9.4	0-100	17	5
EDUCATION	1.2	0-20	3	7
RETAIL	9.1	0-98	11	10
WHOLESALE	4.1	0-30	8	8
FEDERAL GOVERNMENT	1.7	0-30	8	4
STATE & LOCAL GOVERNMENT	2.3	0-50	4	10
SERVICES (CPAs, ETC.)	7.1	0-60	12	7
OTHER	4.3	0-50	8	10
TOTAL	100.0%		120	101

- Companies in this category often concentrate all of their effort in a single sector as reflected by the frequency of respondents indicating 100% of revenues in a single industry sector.
- The expenditure profile shows a relatively low level of expenditure for marketing and sales staff compensation, 6.3% vs. 12.2% for the total industry.
 - This may result from very targeted marketing, consistent with the high level of specialization.
 - Offsetting the lower marketing percentage is a relatively higher computer equipment and maintenance expense, as shown in Exhibit III-10.
- The impact of mini/micros was the major event in 1977-78 according to respondents. The impact was seen to be primarily negative with some positive effect through the use of mini/micros in intelligent terminals and turnkey systems. Other events mentioned frequently were:
 - Good personnel is increasingly scarce, forcing employees to pay "higher wages for less work."
 - Increased competition from new entries including new service bureaus.
 - High concern about a recession particularly in late 1978.
- Companies in this size category feel squeezed by new entries from below and larger companies from above. One respondent verbalized the latter by referring to the impact of "possible organizational changes at both IBM and AT&T." The opportunities which are particularly appropriate for this category of company include:
 - Develop industry expertise in multiple industries to penetrate further in current geographic markets.

EXHIBIT III-10

EXPENDITURE DISTRIBUTION OF RESPONDING PROCESSING SERVICES

COMPANIES WITH REVENUES OF \$2 - \$10 MILLION

EXPENDITURE	% OF TOTAL 1977 EXPENDITURES	
	AVG.	RANGE
Direct personnel compensation (including salaries, commissions, payroll taxes, etc.)		
Total marketing and sales staff	6.3%	0-17%
Research and applications development	7.4	0-33
Operations	20.9	0-52
Other	9.0	0-55
Personnel-related expenditures (inc. voice-phone, travel & living, office supplies, etc.)	6.8	0-31
Computer System equipment and maintenance (inc. interest, depreciation, property taxes, etc.)	22.4	0-49
Data communications expenditures (inc. interest, depreciation, property taxes, etc.)	4.3	0-18
Freight and postage	2.1	0-13
Payments to third-party software developers.	1.5	0-10
Advertising, promotion, seminars, etc.	1.7	0-10
Facility Operations (rent, utilities, etc.)	6.8	0-25
Other (inc. interest on nonequipment loans, state and federal taxes, etc.)	<u>10.8</u>	0-28
Total	100%	

EXTRAORDINARY GAINS OR LOSSES

	AVG.	RANGE
Extraordinary gains	0.3%	0-10%
Extraordinary losses	0.3	0-9

- Be alert to merger/acquisition opportunities to broaden capabilities and exploit the trend to distributed processing.

3. PROCESSING SERVICES COMPANIES WITH REVENUES OF \$10-25 MILLION

- 11 respondents to the survey in this category had 1977 revenues of \$177.4 million or 6.8% of the respondents total.
 - \$4.9 million or 2.8% of survey revenues were captive.
 - \$26.6 million or 15.0% of revenues were non-U.S.. Over half of these revenues were Canadian and were impacted by the high Canadian revenues of one respondent.
 - \$1.5 million of revenues were from non-consolidated foreign affiliates.
- 1978 revenues are forecasted by respondents to grow at 19.2%, greater than the 1977/76 forecast of 18%. Actual 1976 to 1977 growth was 35%.
- 1977 profits before taxes and extraordinary items were \$18.0 million or 10.1%. This compares to 11.6% for all processing companies and 11.3% for the total industry. Average (non-weighted) profits were 10.5% indicating that smaller companies in the category tended to report slightly higher earnings percentages.
- Respondents represent 50% of the estimated 22 U.S. companies in this category.
 - The category contains 0.4% of all computer services firms in the U.S.
 - Average revenues in 1977 were \$16.1 million per company with a minimum of \$10.7 million and a maximum of \$23.0 million.
 - The number of employees was 3,354 with a minimum of 168 and a maximum of 461.

- The average number of customers per company was 835 with a minimum of 100 and a maximum of 1909.
- The 5 largest customers of each company represented an average of 25% of total business.
- The mix of types of services offered by processing services companies in this size category differs from those with revenues over \$25 million in several respects. Results are shown in Exhibit III-11.
 - Industry specialty services at 28.3% is much lower, and utility services at 30.1% is much higher. The higher growth forecasted for the former and lower growth forecasted for the latter indicates that the mix is tending toward the profile of the larger company.
 - Of interest is the high growth anticipated for sale of applications packages, even considering that the growth is from a small base. Combined with the high growth in custom/contract software, it is evident respondents in this category have an increasing interest in sale of software.
- Revenues by industry sector parallel the distribution for the total industry. Results are shown in Exhibit III-12.
 - Banking and finance is relatively higher, with respondents indicating further growth in importance.
 - The only other sector receiving strong mention as "growing in importance" was discrete manufacturing which now accounts for the second highest percentage of revenues.
 - Interestingly, federal government, which accounts for 11.9% of revenues, is not felt to be growing in importance.

EXHIBIT III-11

PERCENT OF REVENUES BY TYPE OF SERVICE OF RESPONDING PROCESSING SERVICES COMPANIES WITH REVENUES OF \$10 - 25 MILLION

TYPE OF SERVICE	% OF TOTAL REVENUES AVERAGE	ESTIMATED GROWTH 1977 vs 1976 AVERAGE	FORECASTED GROWTH 1978 vs 1977 AVERAGE
Processing Services			
General Business	28.5%	49.3%	26.6%
Scientific and Engineering	7.2	26.0	18.0
Industry Specialty	28.3	37.5	39.5
Utility	30.1	23.0	11.9
Software Products			
Applications Packages	3.4	56.6	75.0
Systems Packages	0.4	*	*
Professional Services			
Custom/Contract Software	2.1	27.0	44.0
Consulting, Education, Training	0.0	*	*
TOTAL	100%	-	-

*INADEQUATE NUMBER OF RESPONDENTS

EXHIBIT III-12

INDUSTRY SECTOR MARKETS OF RESPONDING PROCESSING SERVICES COMPANIES WITH REVENUES OF \$10 - \$25 MILLION

INDUSTRY SECTOR	% OF 1977 REVENUES		GROWING IN IMPORTANCE NUMBER RESPONDING	
	AVERAGE	RANGE	YES	NO
DISCRETE MANUFACTURING	12.5%	0-38%	6	2
PROCESS MANUFACTURING	4.5	0-15	3	2
TRANSPORTATION	2.2	0-8	3	3
UTILITIES	7.1	0-45	4	4
BANKING AND FINANCE	22.7	0-70	7	0
INSURANCE	4.8	0-10	4	4
MEDICAL	0.1	0-1	1	2
EDUCATION	0.6	0-5	0	3
RETAIL	11.2	0-100	2	2
WHOLESALE	8.5	0-68	3	2
FEDERAL GOVERNMENT	11.9	0-39	3	4
STATE & LOCAL GOVERNMENT	1.7	0-5	3	1
SERVICES (CPAs, ETC.)	7.2	0-5	2	3
OTHER	5.0	0-20	7	1
TOTAL	100.0 %	-	48	33

- The very high (19.3%) level of marketing and sales compensation expenditures is the unique characteristic of the expenditure pattern of respondents presented in Exhibit III-13.
 - This is 58% higher than the industry average. It reflects the emphasis of companies in this category on relatively large numbers of commission salesmen.
 - The high marketing compensation cost must be viewed in the context of the high growth mentioned earlier.
 - Offsetting the high marketing compensation is a low level of operations compensation relative to other sizes of processing companies.
- Although, as with smaller companies, the impact of mini/micros was viewed as the major event of 1977-78, respondents in this category placed relatively more emphasis on other issues.
 - Communications and the related subjects of distributed processing and value added networks were mentioned.
 - Concern about IBM took several forms:
 - Increased processing capacity at user sites as the 3000 series is delivered.
 - Potential IBM re-entry into the services business in 1979.
 - Price reductions, long lead time on equipment.
 - Some very positive developments were seen:
 - "Customer awareness that he should buy computing not computers (ADP ads)."

EXHIBIT III-13

EXPENDITURE DISTRIBUTION OF RESPONDING PROCESSING SERVICES COMPANIES WITH REVENUES OF \$10 - \$25 MILLION

EXPENDITURE	% OF TOTAL 1977 EXPENDITURES	
	AVG.	RANGE
Direct personnel compensation (including salaries, commissions, payroll taxes, etc.)		
Total marketing and sales staff	19.3%	7-30%
Research and applications development	5.2	0-15
Operations	12.2	5-46
Other	6.0	2-10
Personnel-related expenditures (inc. voice-phone, travel & living, office supplies, etc.)	8.6	2-18
Computer System equipment and maintenance (inc. interest, depreciation, property taxes, etc.)	18.2	8-27
Data communications expenditures (inc. interest, depreciation, property taxes, etc.)	8.9	0-30
Freight and postage	1.9	0-5
Payments to third-party software developers.	1.7	0-5
Advertising, promotion, seminars, etc.	2.0	0-5
Facility Operations (rent, utilities, etc.)	7.6	3-16
Other (inc. interest on nonequipment loans, state and federal taxes, etc.)	<u>8.4</u>	0-38
Total	100%	

EXTRAORDINARY GAINS OR LOSSES

	AVG.	RANGE
Extraordinary gains	0.2%	0-2%
Extraordinary losses	0	-

- "Potential competitors (e.g., banks) awareness that there is more to the data services business than selling time."
- Unique opportunities in this sector come from the comparative current mix of type of service and expenditures.
 - Companies can exploit marketing strengths by adding industry specialty products which are growing more rapidly as a category and which have higher average profitability. This will in turn reduce reliance on selling raw time.
 - Companies can add expertise by acquiring specialized smaller companies thereby avoiding the time delay and risk of building it in-house, a technique used successfully in recent years by Itel and others.
 - Companies can themselves be acquired by large companies with different strengths. An example in recent years was Cyphernetics acquisition by ADP.

4. PROCESSING SERVICES COMPANIES WITH REVENUES OF GREATER THAN \$25 MILLION

- 16 respondents to the survey in this category had 1977 revenues of \$1,559 million or 59.5% of the respondents total.
 - \$203.9 million or 13% of survey revenues were captive.
 - \$102.6 million or 6.6% were non-U.S.
 - \$72.5 million of revenues were from non-consolidated foreign affiliates.
- 1978 revenues are forecasted by respondents to grow at 18.9%, greater than the 1977/76 forecast of 16%. Actual 1976 to 1977 growth was 26%.

- Respondents' 1977 profits before taxes and extraordinary items were \$187.1 million or 12%. This compares to 11.6% for all responding processing companies and 11.3% for the total industry. Average (non-weighted) profits were 11.1% indicating that the larger responding companies had a higher average profit percentage than the smaller companies in this category.
- Respondents represent 53% of the estimated 30 U.S. companies in this category.
 - The category contains 1.0% of all computer services firms in the U.S.
 - Average revenues in 1977 were \$97.5 per company with a minimum of \$25.0 and a maximum of almost \$300 million.
 - The number of employees was 45,213 with a minimum of 495 and a maximum of 9,600.
 - The average number of customers per company was 7,594.
 - The five largest customers accounted for an average of 29.0% of the revenues of each company.
- The types of services offered by these largest processing services companies, as shown in Exhibit III-14, has several revealing characteristics.
 - Industry specialty services account for exactly half of revenues and is reported by respondents to be growing at 38% through the period 1976-1978.
 - Utility services have the highest anticipated growth rate in 1978. INPUT's view is that this is largely due to growth in Data Base Management Systems Services.

EXHIBIT III-14

PERCENT OF REVENUES BY TYPE OF SERVICE OF RESPONDING PROCESSING SERVICES COMPANIES WITH REVENUES OF GREATER THAN \$25 MILLION

TYPE OF SERVICE	% OF TOTAL REVENUES AVERAGE	ESTIMATED GROWTH 1977 vs 1976 AVERAGE	FORECASTED GROWTH 1978 vs 1977 AVERAGE
Processing Services			
General Business	27.1%	18.9%	16.3%
Scientific and Engineering	8.3	35.1	32.6
Industry Specialty	50.0	38.6	38.4
Utility	11.3	20.2	51.4
Software Products			
Applications Packages	0.8	20.2	19.5
Systems Packages	0.1	*	24.8
Professional Services			
Custom/Contract Software	2.3	14.8	23.6
Consulting, Education, Training	0.1	0.0	0.0
TOTAL	100%	-	-

*INADEQUATE NUMBER OF RESPONDENTS

- Scientific and engineering services will have strong growth according to respondents, reflecting the strength of large companies who have established a position with this type of service.
- General business services have a declining share with a growth rate smaller than the average.
- Software products are less than 1% of the total, reflecting the historic tendency of large processing services companies to ignore this segment of the industry.
- Because the companies in this category account for almost 60% of total revenues, their profile of user industry sector revenues as shown in Exhibit III-15 parallels the industry pattern.
 - Banking and finance, already the largest sector, is also viewed most often as one growing in importance.
 - Of total responses to "growing in importance," "yes" outnumbered "no" almost 2:1. This is the highest ratio among processing company categories, indicating that these largest companies are also the most optimistic regarding user industry sector marketing.
- The expenditure pattern also parallels the processing services industry pattern.
 - Greatest differences are with the processing services companies with \$10-25 million in revenues as discussed in the previous section.
 - Although the average expenditures followed the industry pattern, individual expenditures varied widely, as shown in Exhibit III-16.
- The major events of 1977-78 according to respondents in this category was the announcement of lower cost large mainframes, rather than mini/micros impact.

EXHIBIT III-15

INDUSTRY SECTOR MARKETS OF RESPONDING PROCESSING SERVICES COMPANIES WITH REVENUES OF GREATER THAN \$25 MILLION

INDUSTRY SECTOR	% OF 1977 REVENUES		GROWING IN IMPORTANCE NUMBER RESPONDING	
	AVERAGE	RANGE	YES	NO
DISCRETE MANUFACTURING	8.1%	0-57%	5	3
PROCESS MANUFACTURING	12.3	0-80	4	1
TRANSPORTATION	1.6	0-4	3	4
UTILITIES	6.4	0-25	5	3
BANKING AND FINANCE	20.4	0-98	11	1
INSURANCE	10.1	0-98	6	2
MEDICAL	8.1	0-50	6	2
EDUCATION	0.4	0-4	2	3
RETAIL	4.6	0-24	5	2
WHOLESALE	4.4	0-33	6	2
FEDERAL GOVERNMENT	8.9	0-72	6	1
STATE & LOCAL GOVERNMENT	0.9	0-6	2	3
SERVICES (CPAs, ETC.)	5.7	0-33	9	7
OTHER	8.1	0-31	4	10
TOTAL	100.0%	-	74	44

EXHIBIT III-16

INDUSTRY SECTOR MARKETS OF RESPONDING PROCESSING SERVICES

COMPANIES WITH REVENUES OF GREATER THAN \$25 MILLION

EXPENDITURE	% OF TOTAL 1977 EXPENDITURES	
	AVG.	RANGE
Direct personnel compensation (including salaries, commissions, payroll taxes, etc.)		
Total marketing and sales staff	11.2%	0-26%
Research and applications development	6.5	0-15
Operations	18.0	0-48
Other	8.8	0-37
Personnel-related expenditures (inc. voice-phone, travel & living, office supplies, etc.)	6.5	2-15
Computer System equipment and maintenance (inc. interest, depreciation, property taxes, etc.)	20.5	10-44
Data communications expenditures (inc. interest, depreciation, property taxes, etc.)	8.3	0-20
Freight and postage	2.4	0-12
Payments to third-party software developers.	1.8	0-7
Advertising, promotion, seminars, etc.	1.3	0-3
Facility Operations (rent, utilities, etc.)	6.2	4-15
Other (inc. interest on nonequipment loans, state and federal taxes, etc.)	<u>8.5</u>	0-20
Total	100%	

EXTRAORDINARY GAINS OR LOSSES

	AVG.	RANGE
Extraordinary gains	0.3%	0-4%
Extraordinary losses	0	-

- Amdahl and National Semiconductor offerings were specifically mentioned, as was IBM's 303X series.
- Respondents implied that they expected to capitalize on these offerings, rather than lose to in-house installations.
- Other 1977-78 events getting prominent mention included:
 - Distributed processing, generally viewed as positive.
 - The GSA TSP contract.
 - Government activities particularly regarding EFT.
- Respondents viewed hardware environments, both for large and small computers, as being positive with one seeing "acceptance of service as an alternative to add-on of hardware by existing hardware customers."
- These largest companies have opportunities which come from the economic, technical and marketing strengths associated with size.
 - Capitalizing on the improved price/performance of new large mainframes.
 - Incorporating hardware in their services offerings as several companies have announced in recent months.
 - Through acquisition and internal development, expand into new industry markets, including emerging applications such as:
 - . Automated printing services.
 - . Consumer services.
 - . Educational services.

. Office automation.

5. SOFTWARE PRODUCTS COMPANIES WITH REVENUES OF LESS THAN \$2 MILLION

- 46 respondents to the survey in this category had 1977 revenues of \$26.8 million or 1.0% of the respondents total.
 - \$0.1 million were captive.
 - \$1.5 million were non-U.S.
- 1978 revenues are forecasted by respondents to grow at 45%, more than the 1977/76 forecast of 22%. This is the highest growth rate forecast by any category of respondents. Actual 1976 to 1977 growth was 40%.
- Respondents' 1977 profits before taxes and extraordinary items were \$3.0 million or 11.2%. This compares to 11.1% for all responding software companies and 11.3% for the industry. Average (non-weighted) profits were 16.2% indicating that smaller companies in the category had relatively higher profit margins.
- Respondents represent 8% of the estimated 560 U.S. companies in this category.
 - The category contains 21.3% of all computer services firms in the U.S.
 - Average revenues in 1977 were \$0.58 million per company with a minimum of \$100,000 and a maximum of \$1.8 million.
 - The number of employees was 686 with a minimum of one and a maximum of 98.
 - Average number of customers per company was 153 with a minimum of 2 and a maximum of 1,000.

- The five largest customers accounted for 45.7% of the revenues in the average firm.
- The types of services offered by this category of software products companies is characterized by a heavy emphasis on applications packages. This emphasis is expected to continue as shown by the forecasts in Exhibit III-17.
- As with smaller processing services companies, smaller software products companies tend to concentrate on industries with many small establishments.
 - Exhibit III-18 reflects this in that wholesale is a large revenue contributor.
 - Banking is high, followed by discrete manufacturing which is also characterized by many small establishments.
 - With regard to growth, process manufacturing scores highest followed by the three industry sectors mentioned above.
- With regard to expenditures, companies in this category spent the highest percentage on compensation for research and applications development of any of the categories. Other expenditures, as shown in Exhibit III-19, follow the pattern for the industry.
- Respondents viewed major events of 1977-78 differently. The impact of mini/micros, distributed processing, IBM actions, and concern about recession received approximately equal mention.
 - Minis and micros were viewed positively (a market for software) and negatively ("micro and minicomputers will take their toll of many service bureau jobs").
 - Competition within the category was characterized by two respondents as "underpricing by competition" and "need a standard of marketing ethics."

EXHIBIT III-17

PERCENT OF REVENUES BY TYPE OF SERVICE OF RESPONDING SOFTWARE PRODUCTS COMPANIES WITH REVENUES OF LESS THAN \$2 MILLION

TYPE OF SERVICE	% OF TOTAL REVENUES AVERAGE	ESTIMATED GROWTH 1977 vs 1976 AVERAGE	FORECASTED GROWTH 1978 vs 1977 AVERAGE
Processing Services			
General Business	4.2%	21.7 %	31.0 %
Scientific and Engineering	0.9	3.5	5.4
Industry Specialty	1.3	32.5	43.0
Utility	0.8	12.5	*
Software Products			
Applications Packages	68.4	41.5	52.7
Systems Packages	15.6	26.0	30.7
Professional Services			
Custom/Contract Software	6.2	23.1	28.6
Consulting, Education, Training	2.6	11.5	17.5
TOTAL	100%	-	-

*INADEQUATE NUMBER OF RESPONDENTS

EXHIBIT III-18

INDUSTRY SECTOR MARKETS OF RESPONDING SOFTWARE PRODUCTS COMPANIES WITH REVENUES OF LESS THAN \$2 MILLION

INDUSTRY SECTOR	% OF 1977 REVENUES		GROWING IN IMPORTANCE NUMBER RESPONDING	
	AVERAGE	RANGE	YES	NO
DISCRETE MANUFACTURING	12.1%	0-100%	14	4
PROCESS MANUFACTURING	8.3	0-50	16	3
TRANSPORTATION	2.6	0-25	9	4
UTILITIES	2.0	0-20	9	4
BANKING AND FINANCE	18.0	0-100	14	7
INSURANCE	5.5	0-96	13	4
MEDICAL	2.8	0-50	9	6
EDUCATION	4.9	0-70	10	4
RETAIL	4.7	0-50	9	8
WHOLESALE	10.8	0-100	13	5
FEDERAL GOVERNMENT	3.4	0-50	9	4
STATE & LOCAL GOVERNMENT	6.6	0-94	11	5
SERVICES (CPAs, ETC.)	7.7	0-95	8	7
OTHER	10.6	0-100	9	6
TOTAL	100.0%	-	153	71

EXHIBIT III-19

EXPENDITURE DISTRIBUTION OF RESPONDING SOFTWARE PRODUCTS COMPANIES WITH REVENUES OF LESS THAN \$2 MILLION

EXPENDITURE	% OF TOTAL 1977 EXPENDITURES	
	AVG.	RANGE
Direct personnel compensation (including salaries, commissions, payroll taxes, etc.)		
Total marketing and sales staff	18.8%	0-63%
Research and applications development	20.3	0-70
Operations	11.2	0-75
Other	4.3	0-49
Personnel-related expenditures (inc. voice-phone, travel & living, office supplies, etc.)	11.5	0-37
Computer System equipment and maintenance (inc. interest, depreciation, property taxes, etc.)	8.3	0-50
Data communications expenditures (inc. interest, depreciation, property taxes, etc.)	1.8	0-20
Freight and postage	2.5	0-25
Payments to third-party software developers.	3.4	0-40
Advertising, promotion, seminars, etc.	5.4	0-20
Facility Operations (rent, utilities, etc.)	5.8	0-23
Other (inc. interest on nonequipment loans, state and federal taxes, etc.)	<u>6.7</u>	0-25
Total	100%	

EXTRAORDINARY GAINS OR LOSSES

	AVG.	RANGE
Extraordinary gains	1.7%	0-50%
Extraordinary losses	(1.1)	(0-50)

- Opportunities for this category include:
 - Developing software for minis/micros.
 - Moving toward systems software where the need to customize is less and the profit potential is higher.
 - Looking to overseas markets for incremental revenues.

6. SOFTWARE PRODUCTS COMPANIES WITH REVENUES OF \$2-10 MILLION

- 9 respondents of the survey in this category had 1977 revenues of \$39.1 million or 1.5% of the respondents total.
 - \$0.1 million were captive.
 - \$7.5 million or 19% of revenues were non-U.S.
- 1978 revenues are forecasted by respondents to grow at 41.4% smaller than the 1977/76 forecast of 46.8%. Actual 1976 to 1977 growth was 52%.
- 1977 profits before taxes and extraordinary items were \$7.8 million or 19.9%. This compares to 11.1% for all responding software products companies and 11.3% for the total industry. Average (non-weighted) profits were 23.5% indicating that the smaller companies in the category reported somewhat higher profit percentages.
- Respondents represent 18% of the estimated 50 U.S. companies in this category.
 - This category contains 1.6% of all computer services firms in the U.S.
 - Average revenues in 1977 were \$4.3 million per company with a minimum of \$2.2 million and a maximum of \$7.3 million.

- The number of employees was 899 with a minimum of 21 and a maximum of 193.
- Average number of customers per company was 1,484 with a maximum of 4,243 and a minimum of 200.
- The five largest customers accounted for 9.9% of the total revenues for the average company in the category. This is an unusually small percentage, indicating a broad customer base.
- The distinguishing characteristic of this category of companies is the high percentage of revenues (64%) represented by systems packages.
 - As shown in Exhibit III-20, this high concentration is expected to continue with 1977 and 1978 growth rates for systems packages at 40.1% and 37.5% respectively.
 - Companies in this category reported the highest profitability of any of the 10 categories studied, a reflection of the profit potential in systems packages.
- Industry specialization was not given significant importance by respondents because of the concentration on systems packages. The high percentage for the insurance industry reported in Exhibit III-21 is the result of a 100% concentration by one respondent and does not reflect a true profile of the sector.
- With regard to expenditure pattern, the high percentage expended for marketing and sales compensation is significant.
 - It is the highest for any segment studied, reinforcing the relationship of high marketing compensation and high profits.

EXHIBIT III-20

PERCENT OF REVENUES BY TYPE OF SERVICE OF RESPONDING SOFTWARE PRODUCTS COMPANIES WITH REVENUES OF \$2 - 10 MILLION

TYPE OF SERVICE	% OF TOTAL REVENUES AVERAGE	ESTIMATED GROWTH 1977 vs 1976 AVERAGE	FORECASTED GROWTH 1978 vs 1977 AVERAGE
Processing Services			
General Business	2.0%	7.5%	12.5%
Scientific and Engineering	0.9	*	*
Industry Specialty	2.2	36.7	*
Utility	0.3	*	*
Software Products			
Applications Packages	22.3	36.5	22.5
Systems Packages	64.0	40.1	37.5
Professional Services			
Custom/Contract Software	2.7	35.7	34.0
Consulting, Education, Training	5.6	20.3	32.5
TOTAL	100%	-	-

*INADEQUATE NUMBER OF RESPONDENTS

EXHIBIT III-21
INDUSTRY SECTOR MARKETS OF RESPONDING SOFTWARE
PRODUCTS COMPANIES WITH REVENUES OF \$2 - \$10 MILLION

INDUSTRY SECTOR	% OF 1977 REVENUES		GROWING IN IMPORTANCE NUMBER RESPONDING	
	AVERAGE	RANGE	YES	NO
DISCRETE MANUFACTURING	18.4%	0-40%	4	0
PROCESS MANUFACTURING	2.0	0-10	2	0
TRANSPORTATION	16.0	0-16	3	0
UTILITIES	2.6	0-8	1	2
BANKING AND FINANCE	5.8	0-20	1	1
INSURANCE	25.8	0-100	2	1
MEDICAL	7.4	0-25	2	1
EDUCATION	7.4	0-25	2	1
RETAIL	2.2	0-7	1	1
WHOLESALE	1.4	0-7	1	0
FEDERAL GOVERNMENT	2.4	0-8	1	1
STATE & LOCAL GOVERNMENT	5.6	0-20	1	1
SERVICES (CPAs, ETC.)	2.4	0-10	1	1
OTHER	0.6	0-3	1	0
TOTAL	100.0%	-	23	10

- As shown in Exhibit III-22, there is also an unusually high expenditure for advertising, promotions and seminars, again the highest for any category of companies in the study.
- Respondents showed little interest in the mini/micro issue which was so important in other categories of companies.
 - Rather, they were focused on IBM, relative to plug compatible mainframes, terminals, firmware, and software.
 - Security was viewed as growing in importance.
 - Respondents voiced confidence consistent with high profits and growth, for example, "There were no technical surprises (in 1977)."
- According to one respondent, a major 1977 event was the "operational elegance of our products."
- Opportunities for this category of companies include:
 - Applying expertise in systems packages to packages for smaller mainframes.
 - Adding industry specialized packages to systems programs to capitalize on the trend to industry specialized markets discussed in other sections of this report.

7. SOFTWARE PRODUCTS COMPANIES WITH REVENUES OF GREATER THAN \$10 MILLION

- 5 respondents of the survey in this category had 1977 revenues of \$137.8 million or 5.3% of respondents total.

EXHIBIT III-22

EXPENDITURE DISTRIBUTION OF RESPONDING SOFTWARE PRODUCTS COMPANIES WITH REVENUES OF \$2 - \$10 MILLION

EXPENDITURE	% OF TOTAL 1977 EXPENDITURES	
	AVG.	RANGE
Direct personnel compensation (including salaries, commissions, payroll taxes, etc.)		
Total marketing and sales staff	19.4%	5-30%
Research and applications development	15.2	6-30
Operations	12.9	0-30
Other	5.1	0-12
Personnel-related expenditures (inc. voice-phone, travel & living, office supplies, etc.)	10.5	3-27
Computer System equipment and maintenance (inc. interest, depreciation, property taxes, etc.)	5.4	0-10
Data communications expenditures (inc. interest, depreciation, property taxes, etc.)	1.5	0-5
Freight and postage	3.1	0-15
Payments to third-party software developers.	2.7	0-14
Advertising, promotion, seminars, etc.	6.9	1-12
Facility Operations (rent, utilities, etc.)	8.1	1-24
Other (inc. interest on nonequipment loans, state and federal taxes, etc.)	9.2	0-30
Total	100%	

EXTRAORDINARY GAINS OR LOSSES

	AVG.	RANGE
Extraordinary gains	0	-
Extraordinary losses	0	-

- \$3.8 million or 2.8% of revenues were captive.
- \$35.9 million or 26.1% of revenues were non-U.S.
- \$9.0 million of revenues were from non-consolidated foreign affiliates.
- 1978 revenues are forecasted by respondents to grow at 22.6% greater than the 1977/76 forecast of 20.5%. Actual 1976 to 1977 growth was 29%.
- Respondents' 1977 profits before taxes and extraordinary items were \$11.8 million or 8.5%. This compares to 11.1% for all responding software companies and 11.3% for the total industry.
- Respondents represent 63% of the estimated 8 U.S. companies in this category.
 - This is 0.3% of all computer services firms in the U.S.
 - Average revenues in 1977 were \$27.6 million per company.
 - The number of employees was 3,597 with a minimum of 225 and a maximum of 2,300.
 - The average number of customers per company was 4,333 with a minimum of 2,000 and a maximum of 8,000.
- The 5 largest customers of companies in this category represented only 6.7% of average company revenues showing an unusually low concentration relative to other categories of companies.
- Companies in this category, while predominantly in software products are often active in providing processing services, as shown in Exhibit III-23.
 - Over 20% of revenues are in processing services, far greater than the percentage for smaller software companies.

EXHIBIT III-23

PERCENT OF REVENUES BY TYPE OF SERVICE OF RESPONDING SOFTWARE PRODUCTS COMPANIES WITH REVENUES OF GREATER THAN \$10 MILLION

TYPE OF SERVICE	% OF TOTAL REVENUES AVERAGE	ESTIMATED GROWTH 1977 vs 1976 AVERAGE	FORECASTED GROWTH 1978 vs 1977 AVERAGE
Processing Services			
General Business	3.3%	*	*
Scientific and Engineering	4.8	*	*
Industry Specialty	5.6	*	*
Utility	6.4	*	*
Software Products			
Applications Packages	25.0	*	*
Systems Packages	32.4	16.0	16.7
Professional Services			
Custom/Contract Software	21.3	4.7	2.3
Consulting, Education, Training	1.2	*	*
TOTAL	100%	-	-

*INADEQUATE NUMBER OF RESPONDENTS

- One-third of revenues are in systems packages.
- The degree of user industry sector specialization in this category of company parallels the overall computer services industry with these exceptions:
 - As shown in Exhibit III-24, banking and finance total only 11.7% versus over 17% for the industry.
 - Federal government totals 12.3% versus 4.6% for the industry.
- The expenditures pattern of companies in this category reflects also the mix of software products and processing services offered.
 - As shown in Exhibit III-25, marketing compensation and research and applications development compensation are lower than software companies in the smaller size categories and midway between the value for those companies and processing services companies.
 - An unusual expenditure is the relatively high value, 15.7% for personnel-related expenditures, by far the highest for any category of company and double the industry average.
- Respondents felt that the major events of 1977-78 were in two categories; the economy and IBM actions.
 - Recovery was viewed as a 1977 event and recession as a 1978 possibility.
 - IBM's 303X announcement was a 1977 major event.
 - 1978 was viewed by one respondent as the "beginning of commercial usage of minis."

EXHIBIT III-24

INDUSTRY SECTOR MARKETS OF RESPONDING SOFTWARE PRODUCTS

COMPANIES WITH REVENUES OF GREATER THAN \$10 MILLION

INDUSTRY SECTOR	% OF 1977 REVENUES		GROWING IN IMPORTANCE NUMBER RESPONDING	
	AVERAGE	RANGE	YES	NO
DISCRETE MANUFACTURING	14.7%	5-31%	1	0
PROCESS MANUFACTURING	5.3	5-6	1	0
TRANSPORTATION	3.7	2-5	1	0
UTILITIES	5.3	2-10	0	1
BANKING AND FINANCE	11.7	6-19	0	1
INSURANCE	12.3	9-18	1	0
MEDICAL	4.7	2-10	0	1
EDUCATION	4.0	1-10	1	1
RETAIL	5.7	1-11	0	1
WHOLESALE	5.0	4-6	1	0
FEDERAL GOVERNMENT	12.3	0-32	1	0
STATE & LOCAL GOVERNMENT	9.0	6-15	2	0
SERVICES (CPAs, ETC.)	2.7	0-6	1	0
OTHER	3.6	2-5	1	0
TOTAL	100.0%	-	11	5

EXHIBIT III-25

EXPENDITURE DISTRIBUTION OF RESPONDING SOFTWARE PRODUCTS COMPANIES WITH REVENUES OF GREATER THAN \$10 MILLION

EXPENDITURE	% OF TOTAL 1977 EXPENDITURES	
	AVG.	RANGE
Direct personnel compensation (including salaries, commissions, payroll taxes, etc.)		
Total marketing and sales staff	15.0%	14-16%
Research and applications development	9.7	3-23
Operations	19.7	1-23
Other	10.0	9-11
Personnel-related expenditures (inc. voice-phone, travel & living, office supplies, etc.)	15.7	10-23
Computer System equipment and maintenance (inc. interest, depreciation, property taxes, etc.)	6.0	5-7
Data communications expenditures (inc. interest, depreciation, property taxes, etc.)	1.0	0-2
Freight and postage	0.7	0-1
Payments to third-party software developers.	0.7	0-2
Advertising, promotion, seminars, etc.	3.7	1-6
Facility Operations (rent, utilities, etc.)	4.3	3-5
Other (inc. interest on nonequipment loans, state and federal taxes, etc.)	<u>13.5</u>	12-15
Total	100%	

EXTRAORDINARY GAINS OR LOSSES

	AVG.	RANGE
Extraordinary gains	0	
Extraordinary losses	0	

- Companies in this sector have the opportunity to expand their use of combined software - processing services offerings. They can capitalize on the larger processing services markets from an expertise in the fast growing software markets.
8. PROFESSIONAL SERVICES COMPANIES WITH REVENUES OF LESS THAN \$2 MILLION
- 29 respondents to the survey in this category had 1977 revenues of \$7.6 million or 0.3% of the respondents total.
 - \$0.1 million or 1.0% of revenues were captive.
 - No revenues were non-U.S.
 - 1978 revenues are forecasted by respondents to grow at 38.2% greater than the 1977/76 forecast of 10.6%. Actual 1976 to 1977 growth was 33%.
 - Respondents' 1977 profits before taxes and extraordinary items were \$0.4 million or 11.8%. This compares to 9.4% for all professional services companies and 11.3% for the total industry. Average (non-weighted) profits were 14.3% indicating that the smaller companies in the category reported higher profits.
 - Respondents represent 8% of the estimated 360 U.S. companies in this category. (However, there are many other small proprietorships and accounting companies which are not included.)
 - This is 13.7% of all computer services firms in the U.S.
 - Average revenues in 1977 were \$260,000 per company with a minimum of \$10,000 and a maximum of \$1.5 million.

- The total number of employees was 269 with a minimum of one and a maximum of 55.
- Average number of customers per company was 45 with a minimum of 4 and a maximum of 250.
- The 5 largest customers accounted for 75% of revenues in the average company, reflecting a high degree of concentration.
- Over half of the revenues from companies in this category come from custom/contract programming as shown in Exhibit III-26.
 - A significant portion, over 30%, comes from processing services.
 - Although applications packages sales are currently small, respondents anticipate growth of approximately 40%.
- Industry sector revenues are unusually high in discrete manufacturing with federal government and banking and finance next in importance, as shown in Exhibit III-27. Federal government is unique in that respondents anticipate that it will decline in importance while all other sectors are expected to grow in importance.
- Expenditures on compensation for research and applications development are shown in Exhibit III-28 to be 15.6%, far higher than larger professional services companies. This reflects a tendency to place customer applications development in this category.
- Respondents in this category of companies viewed the impact of minis/micros, particularly when marketed by large companies, as being the major event of 1977-78.
 - On balance, the impact was viewed as positive; e.g., "Mini/micro impact should increase the need for custom applications due to various hardware differences."

EXHIBIT III-26

PERCENT OF REVENUES BY TYPE OF SERVICE OF RESPONDING PROFESSIONAL SERVICES COMPANIES WITH REVENUES OF LESS THAN \$2 MILLION

TYPE OF SERVICE	% OF TOTAL REVENUES AVERAGE	ESTIMATED GROWTH 1977 vs 1976 AVERAGE	FORECASTED GROWTH 1978 vs 1977 AVERAGE
Processing Services			
General Business	9.1%	6.3%	15.0%
Scientific and Engineering	0.4	*	10.0
Industry Specialty	20.0	23.0	27.9
Utility	0.3	*	*
Software Products			
Applications Packages	1.9	43.0	38.7
Systems Packages	1.1	8.8	5.5
Professional Services			
Custom/Contract Software	53.2	41.5	36.9
Consulting, Education, Training	14.0	50.0	39.8
TOTAL	100%	-	-

*INADEQUATE NUMBER OF RESPONDENTS

EXHIBIT III-27

INDUSTRY SECTOR MARKETS OF RESPONDING PROFESSIONAL SERVICES COMPANIES WITH REVENUES OF LESS THAN \$2 MILLION

INDUSTRY SECTOR	% OF 1977 REVENUES		GROWING IN IMPORTANCE NUMBER RESPONDING	
	AVERAGE	RANGE	YES	NO
DISCRETE MANUFACTURING	23.9%	0-100%	10	3
PROCESS MANUFACTURING	10.4	0-100	8	2
TRANSPORTATION	1.8	0-30	3	2
UTILITIES	3.3	0-39	5	1
BANKING AND FINANCE	12.4	0-100	9	2
INSURANCE	10.3	0-100	5	2
MEDICAL	2.9	0-42	4	3
EDUCATION	3.6	0-60	3	2
RETAIL	4.3	0-50	5	1
WHOLESALE	6.1	0-85	6	1
FEDERAL GOVERNMENT	5.7	0-80	2	4
STATE & LOCAL GOVERNMENT	5.3	0-90	3	3
SERVICES (CPAs, ETC.)	2.4	0-50	5	0
OTHER	7.6	0-60	6	2
TOTAL	100.0%	-	74	28

EXHIBIT III-28

EXPENDITURE DISTRIBUTION OF RESPONDING PROFESSIONAL SERVICES COMPANIES WITH REVENUES OF LESS THAN \$2 MILLION

EXPENDITURE	% OF TOTAL 1977 EXPENDITURES	
	AVG.	RANGE
Direct personnel compensation (including salaries, commissions, payroll taxes, etc.)		
Total marketing and sales staff	9.3%	0-75%
Research and applications development	15.6	0-89
Operations	23.3	0-96
Other	13.3	0-58
Personnel-related expenditures (inc. voice-phone, travel & living, office supplies, etc.)	9.1	0-35
Computer System equipment and maintenance (inc. interest, depreciation, property taxes, etc.)	6.1	0-40
Data communications expenditures (inc. interest, depreciation, property taxes, etc.)	0.7	0-10
Freight and postage	2.4	0-10
Payments to third-party software developers.	3.0	0-30
Advertising, promotion, seminars, etc.	6.4	0-26
Facility Operations (rent, utilities, etc.)	5.8	0-20
Other (inc. interest on nonequipment loans, state and federal taxes, etc.)	<u>5.0</u>	0-16
Total	100%	

EXTRAORDINARY GAINS OR LOSSES

	AVG.	RANGE
Extraordinary gains	2.1%	0-60%
Extraordinary losses	0.1	0-4

- Reflecting their particular interest in custom programming, several responded that the increasing cost of labor combined with the decreasing cost of equipment was good for services.
- One particularly optimistic comment was, "Regardless of the economic situation the services business will continue to boom."

9. PROFESSIONAL SERVICES COMPANIES WITH REVENUES OF \$2-10 MILLION

- 10 respondents to the survey in this category had 1977 revenues of \$55.7 million or 2.1% of the respondents total.
 - \$1.0 million or 2% of revenues were captive.
 - \$0.8 million or 1.4% of revenues were non-U.S.
- 1978 revenues are forecasted by respondents to grow at 32%, greater than the 1976/1977 forecast of 17.1%. Actual 1976 to 1977 growth of respondents was 46%.
- Respondents' 1977 profits before taxes and extraordinary items were \$5.3 million or 9.5%. This compares to 9.4% for all professional services companies and 11.3% for the total industry. Average (non-weighted) profits were 9.9%, indicating a relatively uniform distribution of profits across the range of company sizes in the category.
- Respondents represent 20% of the estimated 50 U.S. companies in this category.
 - This is 2% of all computer services firms in the U.S.
 - Average revenues in 1977 were \$5.6 million per company with a minimum of \$3.0 million and a maximum of \$9.0 million.

- The number of employees was 1,931 with a minimum of 82 and a maximum of 400.
- The average number of customers per company was 207 with a minimum of 20 and a maximum of 500.
- The average percentage of business obtained from the 5 largest customers was 41.8%.
- Companies in this category are heavily involved in custom/contract software as shown in Exhibit III-29.
 - The most rapid growth is anticipated in the second largest category - industry specialty processing services.
 - Applications packages are expected to grow significantly in 1978 from a small base.
- Industry sector markets concentrate, as expected, in federal government. As shown in Exhibit III-30, federal government is expected to grow in importance.
- With regard to expenditures almost half are in operations compensation, reflecting the emphasis on custom programming. The expenditure profile is presented in Exhibit III-31.
- Respondents in this category were unique in selecting the growing shortage of skilled personnel as the major issue, particularly in 1978.
 - Mini/micro impact was the second most often mentioned issue with the comment that they represented a software market.
 - The tone was generally positive: "Good economy plus a myriad of new announcements results in customized software business."

EXHIBIT III-29

PERCENT OF REVENUES BY TYPE OF SERVICE OF RESPONDING PROFESSIONAL SERVICES COMPANIES WITH REVENUES OF \$2 - 10 MILLION

TYPE OF SERVICE	% OF TOTAL REVENUES AVERAGE	ESTIMATED GROWTH 1977 vs 1976 AVERAGE	FORECASTED GROWTH 1978 vs 1977 AVERAGE
Processing Services			
General Business	5.7%	*	36.7%
Scientific and Engineering	0.0	*	*
Industry Specialty	7.4	75.0	56.7
Utility	0.1	*	*
Software Products			
Applications Packages	2.8	19.2	39.2
Systems Packages	0.4	*	*
Professional Services			
Custom/Contract Software	80.3	37.0	34.6
Consulting, Education, Training	3.3	53.3	30.0
TOTAL	100%	-	-

*INADEQUATE NUMBER OF RESPONDENTS

EXHIBIT III-30

INDUSTRY SECTOR MARKETS OF RESPONDING PROFESSIONAL SERVICES COMPANIES WITH REVENUES OF \$2 - \$10 MILLION

INDUSTRY SECTOR	% OF 1977 REVENUES		GROWING IN IMPORTANCE NUMBER RESPONDING	
	AVERAGE	RANGE	YES	NO
DISCRETE MANUFACTURING	7.2%	0-25%	1	3
PROCESS MANUFACTURING	1.8	0-15	1	2
TRANSPORTATION	2.4	0-10	2	1
UTILITIES	8.0	0-30	3	2
BANKING AND FINANCE	15.7	0-100	4	2
INSURANCE	3.7	0-25	2	1
MEDICAL	3.0	0-20	1	1
EDUCATION	1.0	0-1	0	2
RETAIL	1.4	0-7	1	3
WHOLESALE	3.2	0-20	0	4
FEDERAL GOVERNMENT	26.6	0-75	4	1
STATE & LOCAL GOVERNMENT	3.9	0-30	2	1
SERVICES (CPAs, ETC.)	4.8	0-22	2	3
OTHER	18.2	0-60	7	5
TOTAL	100.0%	-	30	31

EXHIBIT III-31

EXPENDITURE DISTRIBUTION OF RESPONDING PROFESSIONAL SERVICES COMPANIES WITH REVENUES OF \$2 - \$10 MILLION

EXPENDITURE	% OF TOTAL 1977 EXPENDITURES	
	AVG.	RANGE
Direct personnel compensation (including salaries, commissions, payroll taxes, etc.)		
Total marketing and sales staff	6.3%	0-12%
Research and applications development	6.4	0-54
Operations	43.2	0-70
Other	6.8	0-18
Personnel-related expenditures (inc. voice-phone, travel & living, office supplies, etc.)	8.1	3-15
Computer System equipment and maintenance (inc. interest, depreciation, property taxes, etc.)	6.8	0-25
Data communications expenditures (inc. interest, depreciation, property taxes, etc.)	1.0	0-6
Freight and postage	0.4	0-1
Payments to third-party software developers	0.9	0-7
Advertising, promotion, seminars, etc.	1.4	0-4
Facility Operations (rent, utilities, etc.)	3.3	1-6
Other (inc. interest on nonequipment loans, state and federal taxes, etc.)	15.4	0-23
Total	100%	

EXTRAORDINARY GAINS OR LOSSES

	AVG.	RANGE
Extraordinary gains	2.5%	0-25%
Extraordinary losses	0	0

- Opportunities in this sector are limited by the high labor content in custom programming and the growing shortage of skilled labor.
 - Companies can leverage their expertise by using new programming techniques such as DBMSs as languages, and by marketing some products as software packages, particularly systems software.
10. PROFESSIONAL SERVICES COMPANIES WITH REVENUES OF GREATER THAN \$10 MILLION
- 4 respondents to the survey in this category had 1977 revenues of \$389 million or 14.8% of the respondents total.
 - No revenues were captive.
 - \$28.7 million or 7.4% of revenues were non-U.S.
 - Because of the small response profile in this category, a more detailed breakdown will not be given.
 - Responding companies in this category tend to take on characteristics of a "multiservice vendor" with a mix of processing and professional services as shown in Exhibit III-32.
 - Both the utilities section of processing services and the custom contract software area under professional services are expected to have strong growth according to respondents.
 - The large professional services companies emphasize the federal government industry sector and this is reflected in the industry market figures in Exhibit III-33.
 - The expenditure pattern among these larger professional services companies was fairly consistent across the limited number of responses as shown in Exhibit III-34.

EXHIBIT III-32

PERCENT OF REVENUES BY TYPE OF SERVICE OF RESPONDING PROFESSIONAL SERVICES COMPANIES WITH REVENUES OF GREATER THAN \$10 MILLION

TYPE OF SERVICE	% OF TOTAL REVENUES AVERAGE	ESTIMATED GROWTH 1977 vs 1976 AVERAGE	FORECASTED GROWTH 1978 vs 1977 AVERAGE
Processing Services			
General Business	6.8%	*	*
Scientific and Engineering	2.6	*	*
Industry Specialty	3.0	*	*
Utility	14.2	37.0	51.0
Software Products			
Applications Packages	0.3	*	*
Systems Packages	0.5	*	*
Professional Services			
Custom/Contract Software	67.7	44.7	35.7
Consulting, Education, Training	5.0	*	12.5
TOTAL	100%	-	-

*INADEQUATE NUMBER OF RECONDENTS

EXHIBIT III-33

INDUSTRY SECTOR MARKETS OF RESPONDING PROFESSIONAL SERVICES COMPANIES WITH REVENUES OF GREATER THAN \$10 MILLION

INDUSTRY SECTOR	% OF 1977 REVENUES		GROWING IN IMPORTANCE NUMBER RESPONDING	
	AVERAGE	RANGE	YES	NO
DISCRETE MANUFACTURING	4.0%	0-13%	0	2
PROCESS MANUFACTURING	9.5	0-37	1	0
TRANSPORTATION	1.0	0-3	0	1
UTILITIES	1.3	0-2	0	2
BANKING AND FINANCE	4.8	0-12	1	1
INSURANCE	9.0	0-35	1	0
MEDICAL	0.7	0-3	0	0
EDUCATION	0	0	0	0
RETAIL	1.5	0-6	1	0
WHOLESALE	0	0	0	0
FEDERAL GOVERNMENT	46.8	10-75	1	1
STATE & LOCAL GOVERNMENT	13.2	0-26	2	0
SERVICES (CPAs, ETC.)	4.0	0-13	0	1
OTHER	4.2	0-11	1	1
TOTAL	100.0%	-	8	9

EXHIBIT III-34

EXPENDITURE DISTRIBUTION OF RESPONDING PROFESSIONAL SERVICES COMPANIES WITH REVENUES OF GREATER THAN \$10 MILLION

EXPENDITURE	% OF TOTAL 1977 EXPENDITURES	
	AVG.	RANGE
Direct personnel compensation (including salaries, commissions, payroll taxes, etc.)		
Total marketing and sales staff	5.7%	3-10%
Research and applications development	3.0	1-5
Operations	44.0	32-56
Other	4.3	0-7
Personnel-related expenditures (inc. voice-phone, travel & living, office supplies, etc.)	10.7	10-12
Computer System equipment and maintenance (inc. interest, depreciation, property taxes, etc.)	14.0	2-20
Data communications expenditures (inc. interest, depreciation, property taxes, etc.)	3.7	0-9
Freight and postage	1.3	0-3
Payments to third-party software developers.	0.3	0-1
Advertising, promotion, seminars, etc.	0.7	0-1
Facility Operations (rent, utilities, etc.)	5.7	2-10
Other (inc. interest on nonequipment loans, state and federal taxes, etc.)	<u>6.6</u>	4-6
Total	100%	

EXTRAORDINARY GAINS OR LOSSES

	AVG.	RANGE
Extraordinary gains	12.5%	0-50%
Extraordinary losses	0	-

- An opportunity for companies in this category is to apply their technical expertise in systems software and communications to the larger and growing non-government markets, particularly with the advent of distributed processing.

D. CHARACTERISTICS OF COMPANIES BETWEEN \$2 AND \$10 MILLION IN ANNUAL REVENUES

- A special summary analysis was done on this category of company, larger than entry-level, but below \$10 million in annual sales. These companies have opportunities and problems which cut across the processing services - software products - professional services analysis already presented. They are of particular interest because they often are acquisition candidates or will themselves acquire other companies. Through acquisition and/or internal growth some will become major companies in the 1980s.
 - In 1977, these companies accounted for \$295.4 million in sales or 11.3% of the industry total.
 - In most characteristics, these companies were found to vary only slightly from smaller and larger companies.

I. UNIQUE OPPORTUNITIES

- As shown in the earlier quartile analysis (Exhibit III-4), companies in this size category had the highest 1977 vs. 1976 growth.
 - They often combine the vitality of a smaller, younger company with adequate size to address multiple markets.
- They have good profit potential, averaging \$6,000 of profit per employee vs. \$5,000 for both the less than \$2 million category, and the over \$10 million category.

- They can leverage this good growth and profit potential by expanding into new markets.
 - Geographically from current regional penetration.
 - Through new products either by internal development or acquisition.

2. UNIQUE PROBLEMS

- Companies in this size category are being squeezed by:
 - New services entries in the less than \$2 million category in regional markets.
 - New technology, particularly mini/micro offerings from hardware-turnkey vendors.
 - Large services companies who offer specialty products and a national marketing posture.
- Often these companies are still dominated by an initial product on which the company is based and have not found the key to successful new product introductions.
- The challenge to companies in this size category is to complete the transition from regional, limited product companies to national, multiproduct companies.

IV T I M E L Y I S S U E S F O R
M A N A G E M E N T I N 1 9 7 8

IV TIMELY ISSUES FOR MANAGEMENT IN 1978

A. MINI/MICROCOMPUTER IMPACT

I. TECHNOLOGY FORECAST

- Total U.S. small computer shipments are projected by INPUT to rise from \$2 billion in 1977 to \$8 billion in 1982 and to \$20 billion in 1987.
 - By 1982, close to 1 million minicomputers will be installed. (This will represent less than 20% of the total potential market.)
 - Of these, approximately 60% will be commercially oriented "small business computers."
 - The number of systems shipped will increase from 70,000 in 1977 to 220,000 by 1982.
- Technology developments that will occur include:
 - Price/performance improvements of 7 to 10 will occur in the next 5 years.
 - On-line storage costs will decrease by 25% to 40% per year.

- Expanding use will be made of peripherals of all kinds including laser printers and voice input/output.
- These developments will occur at all size levels of computer users, but large systems users will generally benefit first.
- As processing hardware becomes less expensive, terminals will be available everywhere. Every new typewriter or word processor will be a potential terminal. For all intents and purposes, minicomputers and intelligent terminals will be indistinguishable.
- Distributed processing is not here yet; only 5% of small computer installations are working in a communications environment of any kind.
- Multiprocessors based on mini/microcomputers can provide a spectrum of processing power up to the equivalent of the largest Amdahl processor. For example, Tandem recently shipped a ten processor system valued at \$2 million.
- Traditional minicomputer manufacturers will be squeezed hard in the next several years for their share of the market.
 - IBM will announce a new minicomputer product line and press-down into standalone and distributed data processing minicomputer and small business computer segments.
 - Other mainframe manufacturers such as Honeywell and Univac will be increasingly competitive.
 - Semiconductor companies such as National Semiconductor, Intel, Fairchild, and Texas Instruments, will vertically integrate into mini-computer systems markets.
- In the battleground which is emerging, the keys to success will be software and support; two keys which most minicomputer companies have lacked:

- Computer mainframe companies have the hardware support and some software.
- Computer services companies have the software and end user support, but lack the hardware capability.
- The recent announcements of ADP, National CSS and other processing services companies in providing user-site computers for "timesharing" which are linked into their networks are a recognition of these developments.
 - By implementing their software in this manner, ADP and NCSS have brought effective software to one segment of the minicomputer marketplace.
 - These announcements change the price level for large quantity use of utility remote computing services (RCS) resources.
 - They represent the recognition that processing services companies are solution oriented: the mix of minicomputers, communications, terminals, and large central systems is merely the delivery vehicle for these solutions.
- When they have a complete software capability for a given customer, software product and professional services companies are able to participate in the market by packaging their software with OEM supplied mini/microcomputers.
- In this environment the computer services company has opportunities as well as possible threats to its current business. The survey carried out for this report investigated the computer services companies' attitudes and activities in this area.

2. ATTITUDES OF COMPUTER SERVICES COMPANIES

- About 80% of processing services companies consider they have some business vulnerable to mini/microcomputers.
- Software products and professional services companies generally felt their business was little, if any, exposed:
 - Many of them considered mini/microcomputers to be their opportunity rather than a threat.
 - Where they had processing services as well, they considered that part to be vulnerable in the same way as processing services companies.
- Processing services companies, on average, considered about 33% of their business to be vulnerable to mini/micros. Larger companies felt considerably less threatened than smaller companies, as shown in Exhibit IV-1.
- General business such as standard accounting services were considered to be more vulnerable than the average; respondents generally considered them to be about 50% exposed.
- However, several industry specialized companies considered themselves extremely vulnerable. Some examples of responses are:
 - "100% vulnerability to in-house micros in law firms."
 - "All business" - banking services company.
 - "Direct competition" to 100% of business - apparel manufacturing specialist.
 - "Any service client is a replacement target," - 100% banking services specialist.

EXHIBIT IV-I

VULNERABILITY OF RESPONDENTS' BUSINESS TO MINI/MICROCOMPUTERS

TYPE/SIZE OF RESPONDENTS	COMPUTER SERVICES BUSINESS VULNERABLE TO REPLACEMENT BY MINI/MICROCOMPUTERS?			
	NUMBER OF RESPONDENTS "YES"	NUMBER OF RESPONDENTS "NO"	VULNERABILITY	
			AVERAGE	MAXIMUM
PROCESSING SERVICES				
< \$2M	105	26	36%	100%
\$2-10M	33	10	30	100
\$10-25M	10	-	25	50
> \$25M	12	*	13	30
SOFTWARE PRODUCTS				
< \$2M	7	30	8	50
\$2-10M	*	6	8	20
> \$10M	*	*	*	*
PROFESSIONAL SERVICES				
< \$2M	4	22	16	100
\$2-10M	*	7	7	30
> \$10M	*	*	*	*
TOTAL	178	109	27%	

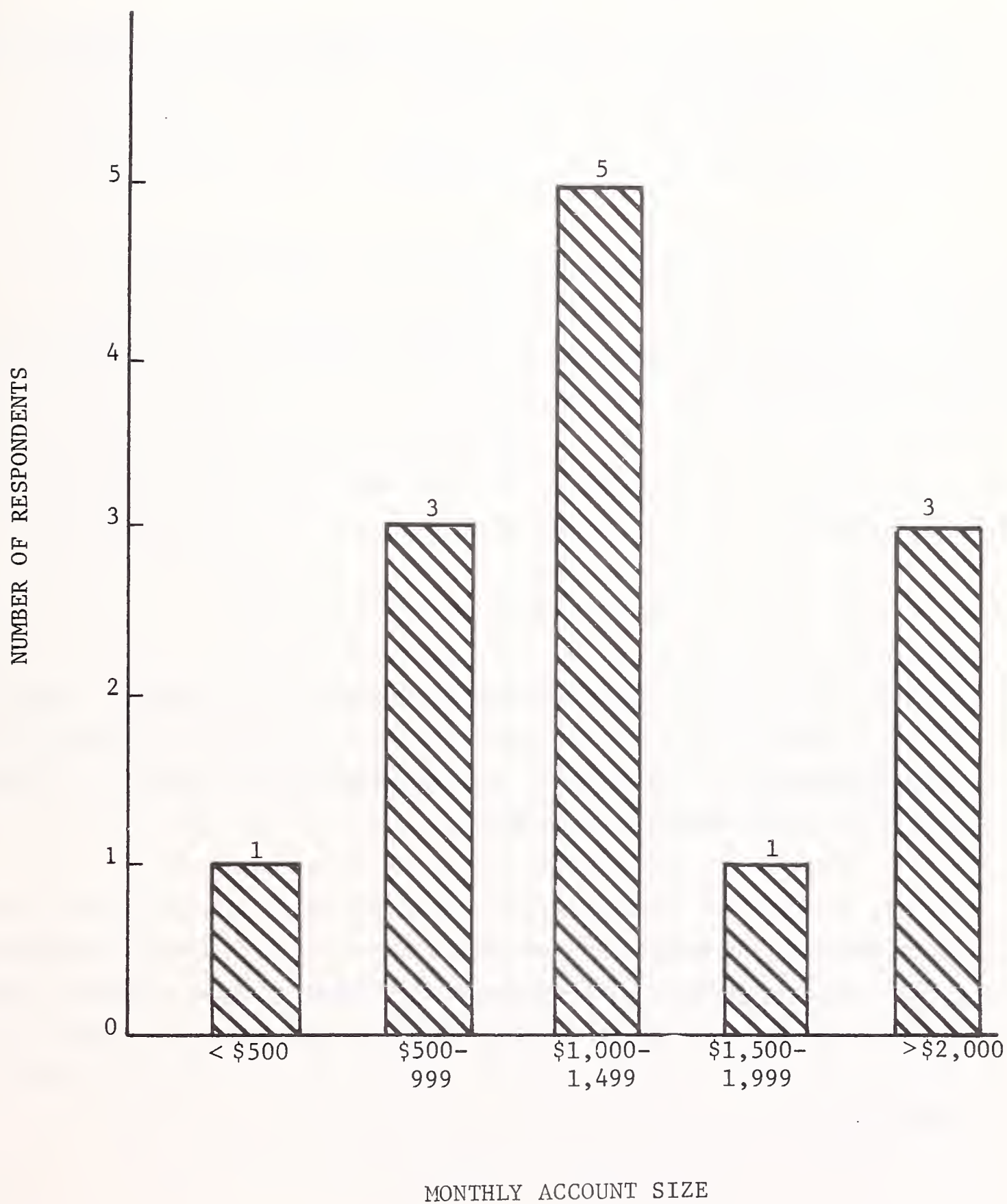
*TOTAL NUMBER OF RESPONSES LESS THAN 5.

- In terms of mode of service, batch processing was regarded as slightly more vulnerable.
- Respondents' view of vulnerability by size of account varied widely:
 - "Some of our smaller customers may have use for minis."
 - "Customers who have grown large enough (may be vulnerable)."
 - "Only large customers."
 - "Our middle dollar volume customers most vulnerable."
- Several respondents volunteered monthly account sizes which they considered vulnerable. As shown in Exhibit IV-2, 70% of these considered \$1,000 a month or more to be the point at which vulnerability starts.
- INPUT forecasts new mini/microcomputer systems will drive the threshold at which processing services users will consider their own computer from the current \$1,000 per month to a future \$500 per month or less.
- While processing services companies consider their services are exposed to a limited extent to mini/micro competition, they certainly do not view them as unbeatable. Often the size and complexity of the software and processing requirements are viewed as beyond the capabilities of the mini/micro-computers:
 - "I believe it will be some years before there is a significant impact on my market because of the complexity of the software," - banking services specialist.
 - "No: customers need too big a mini," - banking services specialist.

EXHIBIT IV-2

RESPONDENTS' MEASUREMENT OF ACCOUNT SIZES

VULNERABLE TO MINI/MICROS



- "No: systems apply to large organizations with large data bases."
- "No: large business applications."
- "No: on-line, large data base systems."
- Also, processing services companies are responding positively to mini/micro-computer developments:
 - "Intelligent terminals are our response."
 - "Minis will expand our business by allowing easier interface."
 - "Most of our services are batch which could be done on minis; that's why we are starting to sell minis."
 - "Doing minis ourselves: a more significant factor (than vulnerability to them)."
 - "Can stop move (to minis) with our own approaches."
- Overall, the level of "threat" from mini/microcomputers appears unknown. Larger companies which can be expected to have reviewed it in detail are not terribly concerned; most of them view mini/micro developments as providing new opportunities as well as competition.
- In the software marketplace, some companies which provide software for timesharing use are concerned about the mini threat. Also, several companies which provide software for medium and large systems foresaw some competition from mini-based systems. Otherwise mini/microcomputers were viewed positively: "We are in it!" was the view of a good number of respondents.

- In summary, mini/microcomputer developments will expand the computer services industry because of the increased need for software and problem solutions, and the expanding number of interface possibilities.

3. ACTIVITIES OF COMPUTER SERVICES COMPANIES

- One of the most dramatic findings of the survey is the growth in the number of mini/microcomputers that respondents will place at customer locations. As shown in Exhibit IV-3, respondents expect this number to increase by 73% this year and 86% in 1979.
- The projected 3,500 new installations in 1979 will have an approximate value of \$100 million. As respondents to the survey represent approximately one-third of the total industry in revenues, the total value of mini-based systems shipped through computer services vendors in 1979 may be \$300 million or more if vendor projections are realized.
- In terms of revenues to services companies, however, two factors must be taken into account.
 - Systems provided on lease or rent, or as part of a monthly service package, will reduce the immediate impact on revenues.
 - Hardware "pass throughs" form a significant portion of the business, as much as 50% in some cases, thus the incremental value to computer services companies will be reduced correspondingly.
- As well as the increase in numbers shipped by existing suppliers, there is a notable increase in the number of companies expecting to supply such systems (as shown in Exhibit IV-4).
 - By 1978, over half of the respondents to the survey expect to have mini/microcomputers installed at customer sites.

EXHIBIT IV-3

RESPONDENTS' PROJECTED MINICOMPUTER INSTALLATIONS
AT CUSTOMER SITES

TYPE/SIZE NO. OF COMPANIES IN CELL		MINICOMPUTERS INSTALLED					
		1977		1978		1979	
		NO. OF INSTAL.	MAXIMUM*	NO. OF INSTAL.	MAXIMUM*	NO. OF INSTAL.	MAXIMUM*
PROCESSING SERVICES							
<\$2M	133	219	45	565	150	1,231	250
\$2-10M	46	486	160	835	300	1,705	600
\$10-25M	11	216	185	392	335	527	375
>\$25M	16	1,171	1,000	1,692	1,200	2,732	1,500
SOFTWARE PRODUCTS							
<\$2M	45	107	23	227	45	424	100
\$2-10M	10	6	3	45	15	180	100
>\$10M	5	11	10	35	20	125	100
PROFESSIONAL SERVICES							
<\$2M	29	56	20	141	40	349	100
\$2-10M	10	76	40	141	60	226	90
>\$10M	4	11	8	20	15	58	50
TOTAL	309	2,359		4,093		7,557	

*MAXIMUM PER RESPONDENT

EXHIBIT IV-4

NUMBER OF RESPONDENTS PROJECTING MINICOMPUTER INSTALLATIONS AT CUSTOMER SITES

COMPANY TYPE/SIZE OF RESPONDENTS	TOTAL NUMBER OF RESPONDENTS	NUMBER OF RESPONDENTS WITH INSTALLED MINICOMPUTERS		
		1977	1978	1979
PROCESSING SERVICES				
<\$2M	133	36	66	60
\$2-10M	46	24	30	33
\$10-25M	11	3	5	6
>\$25M	16	7	11	12
SOFTWARE PRODUCTS				
<\$2M	45	14	17	18
\$2-10M	10	3	4	3
>\$10M	5	2	2	2
PROFESSION- AL SERVICES				
<\$2M	29	9	17	17
\$2-10M	10	6	6	5
>\$10M	4	2	2	2
TOTAL	309	106	160	158

- For processing services companies over \$25 million, the average number of installations per company will reach 70, discounting one respondent which expects to have 1,500 installed by then.
- However, computer services companies are not sure of how well their forays into providing on-site minicomputers will work out:
 - Few new suppliers of minicomputers emerge from respondents in 1979.
 - Several suppliers in 1977 and 1978 were unsure of 1979.
 - Also, the frequency of "100" as the number of installations in 1979 indicates an order of magnitude estimate by respondents rather than the results of firm market planning.
- There thus appears to be two fairly equal camps in the computer services industry:
 - Those who view installation of mini/microcomputers at customer sites as a major opportunity and expect to see rapid growth in the number of installations.
 - Those who are adopting a more "wait and see" attitude and who will compete with mini/microcomputers directly in the meantime.

B. INTERNATIONAL MARKETS

I. CURRENT ACTIVITIES BY U.S. COMPANIES

- The 1977 non-U.S. revenues of respondents accounted for 8% of their total revenues, as shown in Exhibit IV-5.

EXHIBIT IV-5

RESPONDENTS' REVENUES FROM NON-U.S. SOURCES

AND PARENT COMPANIES

1977

TYPE/SIZE OF RESPONDENTS	NUMBER OF RESPONDENTS	RESPONDENTS TOTAL REVENUES	FROM PARENT COMPANY	AVAILABLE	NON-U.S.		U.S. AVAILABLE
					REV.	% OF AVAIL.	
PROCESSING SERVICES							
<\$2M	133	\$ 92.2	\$ 9.1	\$ 83.1	\$ 0.5	1%	\$ 82.6
\$2-10M	46	200.6	21.8	178.8	1.0	1	177.8
\$10-25M	11	177.4	4.9	172.5	26.6	15	145.9
>\$25M	16	1,559.4	203.9	1,355.5	102.6	8	1,252.9
TOTAL PROC. SERVICES	206	\$ 2,029.6	\$ 239.7	\$1,789.9	\$130.7	7%	\$1,659.2
SOFTWARE PRODUCTS							
<\$2M	45	26.0	0.1	25.9	1.5	6%	24.5
\$2-10M	10	47.1	0.1	47.0	7.5	16	39.5
>\$10M	5	137.8	3.8	134.0	26.9	20	107.1
TOTAL SOFT- WARE PROD.	60	\$ 210.9	\$ 4.0	\$ 206.9	\$ 35.9	17%	\$ 171.1
PROFESSION- AL SERVICES							
<\$2M	29	7.6	0.1	7.5	-	-	7.5
\$2-10M	10	55.7	1.0	54.7	0.8	1	53.9
>\$10M	4	326.0	0	326.0	27.9	9	298.1
TOTAL PROF. SERVICES	43	\$ 389.3	\$ 1.1	\$ 388.2	\$ 28.7	7%	\$ 359.5
TOTAL	309	\$2,629.8	\$244.8	\$2,385.0	\$ 195	8%	\$ 2,190

(\$ MILLION)

- Canadian revenues were approximately 2%.
 - European revenues were approximately 5%.
 - Other non-U.S. revenues were just over 1%.
- Software products companies had the largest percent contribution from non-U.S. sources, with 17% of the total revenues of respondents in this category coming from such sources. In addition, the revenues of non-consolidated foreign affiliates were equivalent to a further 17% of the total, as shown in Exhibit IV-6.
 - For processing companies, non-U.S. revenue sources are much more important for middle-range (\$10 million to \$25 million) companies than for the largest organizations.
 - For companies below \$10 million, only software products companies had significant revenue shares from abroad. In some cases this was due to the U.S. company being part of a foreign corporation.

2. POTENTIAL FOR GROWTH

- Growth of non-U.S. revenues was 49% for larger than the overall growth of the U.S. computer services revenues for the respondents.
- The potential for U.S. companies for a major international effort is shown by Comshare whose growth last year was over 40% when revenues from non-consolidated foreign affiliates are included. Comshare has now announced that it will increase ownership in its associate companies, thereby increasing its already sizeable commitment to foreign markets.
- In the major non-U.S. market, Europe, current penetration by U.S. companies is approximately 10% of the total \$2.9 billion market in 1977. This, of course excepts IBM which alone has about 5% of this market.

EXHIBIT IV-6

RESPONDENTS' NON-U.S. COMPUTER SERVICES

REVENUE GROWTH, 1976 TO 1977

TYPE/ SIZE	# OF RESPON- DENTS	NON-U.S. REVENUES (\$ MILLION)								NON- CONSOL- REVENUES (\$ MILLION) 1977
		1976				1977				
		CANADA	EUROPE	OTHER	TOTAL	CANADA	EUROPE	OTHER	TOTAL	
PROCESSING SERVICES										
<\$2M	133	\$ 0.03	\$ 0.04	\$ 0	\$ 0.07	\$ 0.1	\$ 0.4	-	\$ 0.5	\$ 0.2
\$2-10M	46	0.20	0.07	0.1	0.37	0.6	0.3	-	1.0	0
\$10-25M	11	1.60	1.50	0.3	3.40	18.7	7.7	0.2	26.6	1.6
>\$25M	16	7.60	49.20	10.4	67.20	8.7	71.3	22.6	102.6	72.5
SOFTWARE PRODUCTS										
<\$2M	45	0.20	0.10	0.4	0.70	0.5	0.8	0.1	1.5	0
\$2-10M	10	0.40	2.40	0.2	3.00	2.1	4.6	0.8	7.5	25.0
>\$10M	5	3.20	11.20	3.6	18.00	4.6	15.1	7.1	26.9	9.0
PROFESSIONAL SERVICES										
<\$2M	29	-	-	-	-	-	-	-	-	0.6
\$2-10M	10	0.10	0.03	0.1	0.23	-	0.2	0.6	0.8	0
>\$10M	4	13.70	23.90	0.6	38.20	8.4	17.8	1.7	27.9	35.0
TOTAL	309	\$27.03	\$88.44	\$15.7	\$131.17	\$ 43.7	\$118.2	\$33.1	\$195.3	\$ 143.9

- Growth of the European market is lower overall (15% between 1976 and 1977) than in the U.S. Interactive RCS (timesharing) is growing at about 30% per year and is a prime target of U.S. companies.

C. COMPUTER SERVICES INDUSTRY SPECIALIZATION

I. PROCESSING AND SOFTWARE OFFERINGS

- Most companies consider themselves specialists to a greater or lesser extent.
- Professional services companies generally do not consider that they have "specialty application products" except for processing services which they offer. Thus, a professional services vendor with a processing subsidiary associates 16% of those revenues with "DBMS."
- However, approximately half the professional services companies do have areas of specialization other than the basic type of work they perform such as programming, system design, and education.
 - One type of specialization is by discipline, so that "planning methodology," "network protocol handling," "technology consulting," and "project management" were typical of responses.
 - Another type of specialization is industry defined at a very specific level; for example, "grain industry software," "medical billing," "CPAs," "insurance claims processing."
 - The third type is by function across industries; here the only major duplication of specialties occurred with almost 25% of respondents identifying accounting systems and financial systems as an area of specialization.

- Software products companies reported over 40% of their specialty applications products to be industry specialized, compared to about 30% that were general business oriented and only one that was engineering oriented.
- Systems packages suppliers in some cases did not answer the question since it referred to "specialty application products," thus, the number of such products reported in Exhibit IV-7 is unrepresentative of the sample.
- The number of packages for the finance and banking, and medical industry sectors was lower than would be expected considering the level of processing services specialization in them.
- Overall, processing services companies reported as many general business specialty applications as industry specialized. However, there are significant differences among company size groups.
 - For small companies payroll is the single most common specialty application, as shown in Exhibit IV-8, with over 20% of respondents identifying it as one of their three main specialties.
 - For small companies, general business accounts for the majority of specialty applications, whereas for larger processing services companies the proportion drops to about one-third, as shown in Exhibits IV-9 and IV-10.
 - The banking and finance industry sector is more important for larger processing companies where it accounts for 40% to 50% of industry product specialization than for small companies where it accounts for 20% of industry product specialization.
 - Within industry specialty applications, manufacturing and distribution are much less important to middle-range companies than either of the other two categories. This is probably due to acquisitions by large

EXHIBIT IV-7

SPECIALTY APPLICATIONS REPORTED BY SOFTWARE PRODUCTS COMPANIES

TYPE	NUMBER OF MENTIONS	DESCRIPTION
GENERAL BUSINESS	7	ACCOUNTING
	1	COST ACCOUNTING
	5	PAYROLL/PERSONNEL
	3	INVENTORY MANAGEMENT
	1	FINANCIAL PLANNING
	1	CASH PLANNING
	1	ORDER ENTRY
	1	ACTUARIAL
	1	ADVERTISING ADMINISTRATION
	1	AUDITING
	1	"GENERAL BUSINESS"
	1	MAILING SYSTEM
	1	MENU COSTING
	25	TOTAL
INDUSTRY SPECIALIZED	6	MANUFACTURING (3), JOB COSTING, SHOP MANAGEMENT, PROCESS MANUFACTURING
	4	TRANSPORTATION, ROUTING (3)
	3	BANKING, CREDIT UNIONS, STOCK AND BOND HANDLING
	7	INSURANCE, CLAIM'S PAYMENT, CASUALTY INFORMATION, LIFE INSURANCE, PENSION SYSTEM, ANNUITY (2)
	1	MEDICAL
	2	RETAIL, SHOPPING CENTER CASH PLANNING
	2	WHOLESALE, COTTON MERCHANT MANAGEMENT
	1	COUNTY GOVERNMENT
	2	CONSTRUCTION
	1	REAL ESTATE MANAGEMENT
	1	FUND RAISING
	2	ACCOUNTANTS WRITE UP, PROFESSIONAL BILLING
	32	TOTAL

EXHIBIT IV-7 (contd.)

SPECIALTY APPLICATIONS REPORTED BY SOFTWARE PRODUCTS COMPANIES

TYPE	NUMBER OF MENTIONS	DESCRIPTION
SCIENTIFIC & ENGINEERING	1	
UTILITY	2 5 3 2 1 1 1 1 1 1 1 2	GRAPHICS SOFTWARE PROGRAMMING DEVELOPMENT AIDS PROJECT CONTROL DATA BASE MANAGEMENT SYSTEMS INFORMATION RETRIEVAL OPERATING SYSTEMS TAPE LIBRARY MANAGEMENT JOB DOCUMENTATION SORTS CPM/PERT COMPUTER PERFORMANCE IMPROVEMENT OTHER
	21	TOTAL
TOTAL	79	

EXHIBIT IV-8

SPECIALTY APPLICATIONS REPORTED BY PROCESSING SERVICES COMPANIES (LESS THAN \$2 MILLION REVENUES)

TYPE	NUMBER OF MENTIONS	DESCRIPTION
INDUSTRY SPECIALTY	22	FINANCE & BANKING (S&L, BANKING, CREDIT UNIONS, LOAN ACCOUNTING, MORTGAGE BANKING, SECURITY AND PORTFOLIO ACCOUNTING, SECURITIES DATA BASES)
	15	MEDICAL (DOCTOR BILLING, NURSING HOME, HOSPITAL, CLINICS)
	15	MEMBERSHIP, PUBLICATIONS, ASSOCIATIONS (FUND RAISING, RELIGIONS, SUBSCRIPTION, READER INQUIRY, CIRCULATION, ENTERTAINMENT,)
	13	MANUFACTURING (GENERAL, FOREST PRODUCTS, ACCOUNTING, PETROLEUM, FURNITURE)
	11	WHOLESALE DISTRIBUTION (OIL AND GAS, FOOD, AUTO DEALER ACCOUNTING, HARDGOODS)
	10	INSURANCE (LIFE INSURANCE, CREDIT INSURANCE, AGENCY ACCOUNTING, CLAIMS ADMINISTRATION, AUTO INSURANCE)
	6	CONSTRUCTION
	6	GOVERNMENT (COUNTY, MUNICIPAL WATER & SERVICES, TAX ROLL ACCOUNTING, COUNTY TAXES)
	5	RETAIL (BAKERY, DAIRY)
	4	EDUCATION (VOCATIONAL SCHOOL, TEST SCORING)
	2	OTHER
	109	TOTAL

EXHIBIT IV-8 (contd.)

SPECIALTY APPLICATIONS REPORTED BY PROCESSING SERVICES
COMPANIES (LESS THAN \$2 MILLION REVENUES)

TYPE	NUMBER OF MENTIONS	DESCRIPTION
GENERAL BUSINESS	28	PAYROLL
	20	ACCOUNTS RECEIVABLE
	11	ACCOUNTS PAYABLE
	17	GENERAL LEDGER
	10	ACCOUNTING
	9	LETTER WRITING/MAIL LIST
	6	FINANCIAL PROCESSING, PLANNING & REPORTING
	5	INVENTORY CONTROL
	4	GENERAL BUSINESS
	4	MARKET RESEARCH, ANALYSIS, AND CONTROL
	14	OTHER
	128	TOTAL
SCIENTIFIC & ENGINEERING	3	TOTAL
UTILITY	5	DATA ENTRY
	5	OTHER
	10	TOTAL
TOTAL	250	

EXHIBIT IV-9
SPECIALTY APPLICATIONS REPORTED BY PROCESSING SERVICES
COMPANIES (\$2 MILLION TO \$10 MILLION REVENUES)

TYPE	NUMBER OF MENTIONS	DESCRIPTION
INDUSTRY SPECIALTY	22	BANKING AND FINANCE (BROKERAGE, CREDIT UNIONS, S&Ls, STOCK DATA BASE, SAVINGS, DEMAND DEPOSIT, PROOF TRANSIT, PORTFOLIO ANALYSIS)
	6	MEDICAL
	3	INSURANCE (POLICY MAINTENANCE, MEDICAID, CLAIMS ESTIMATION)
	2	MANUFACTURING
	2	BROADCASTING
	3	EDUCATION (SCHOOL SCHEDULING, REPORT CARDS)
	2	GOVERNMENT (MUNICIPAL ACCOUNTING, DRIVING RECORDS)
	6	OTHER
	46	TOTAL
GENERAL BUSINESS	9	ACCOUNTS RECEIVABLE
	1	ACCOUNTS PAYABLE
	1	GENERAL LEDGER
	1	ACCOUNTING
	3	PAYROLL
	4	PERSONNEL (TIMEKEEPING, BENEFITS COMMUNICATION, RETIREMENT PLANNING, HUMAN RESOURCE MANAGEMENT)
	5	FINANCIAL PROCESSING, PLANNING AND REPORTING
	4	ORDER ENTRY AND PROCESSING
	2	MAIL LIST
	1	FRANCHISE ACCOUNTING
	1	MARKET RESEARCH
	32	TOTAL
SCIENTIFIC & ENGINEERING	2	STRUCTURAL ENGINEERING, STATISTICS
UTILITY	3	PHOTO COMPOSITION
	2	TEXT PROCESSING
	2	INFORMATION RETRIEVAL
	3	OTHER
	10	TOTAL
TOTAL	90	

EXHIBIT IV-10

SPECIALTY APPLICATIONS REPORTED BY PROCESSING SERVICES COMPANIES (OVER \$10 MILLION REVENUES)

TYPE	# OF MENTIONS	DESCRIPTION (SAMPLE SPECIALTIES)
INDUSTRY SPECIAL-IZATION	11	FINANCE AND BANKING (CREDIT CARD, BROKERAGE, DEPOSIT/LOAN ACCOUNTING)
	6	MANUFACTURING (MRP, CUT PLANNING, AUTOMOTIVE, PETROLEUM)
	4	MEDICAL (HOSPITAL BILLING, PSROs)
	5	INSURANCE (POLICY MANAGEMENT, PREMIUM BILLING)
	2	WHOLESALE DISTRIBUTION
	1	FEDERAL GOVERNMENT
	1	UTILITY BILLING
	30	TOTAL
GENERAL BUSINESS	9	FINANCIAL PLANNING AND ANALYSIS
	3	ACCOUNTING, ACCOUNTS RECEIVABLE, GENERAL BUSINESS
	2	PAYROLL
	2	INVENTORY MANAGEMENT
	4	OTHER
	20	TOTAL
SCIENTIFIC AND ENGINEERING	4	ENGINEERING DESIGN SERVICES, ENGINEERING, SCIENTIFIC
UTILITY	6	DATA BASE MANAGEMENT SYSTEMS
TOTAL	60	

processing companies of small manufacturing specialists, and also large processing companies addressing the needs of large manufacturers, while small companies concentrate on the accounting applications for small manufacturers.

- The change in the nature of general business applications among size of processing services companies is illustrated by the relative importance of financial planning and analysis products which accounts for only 5% of small company general business specialties, 16% for medium-sized companies, and 45% for large processing companies. At the same time payroll and accounting decrease from 70% of general business specialties in small companies to 50% for medium-sized companies, to 25% for large companies.
- The concentration of specialization reduces sharply by increases in size of company, as shown in Exhibit IV-11.
 - For companies with less than \$2 million in annual revenues, their major specialty usually accounts for over 50% of their revenues.
 - There is then a major drop to the share of business from the second product.
 - Larger companies, as is to be expected, have a more even distribution, but the level of business concentration is still high for the primary specialty product.
 - All companies seem to have about the same level of revenue concentration in their third specialty.
 - For small processing companies, about 70% of their business comes from their three specialty products, compared to less than 50% from large companies.

EXHIBIT IV-II

RESPONDENTS' BUSINESS CONCENTRATION BY SPECIALTY APPLICATION

TYPE/SIZE OF RESPONDENTS	NUMBER OF RESPONSES	PROPORTION OF BUSINESS FROM SPECIALTY APPLICATION PRODUCTS		
		FIRST	SECOND	THIRD
PROCESSING SERVICES				
< \$2M	122	51%	16%	7%
\$2-10M	40	54	12	7
\$10-25M	7	45	17	8
>\$25M	13	27	13	6
SOFTWARE PRODUCTS				
<\$2M	39	63	14	5
\$2-10M	6	63	23	7
>\$10M	2	48	29	7
PROFESSION- AL SERVICES				
<\$2M	11	44	15	9
\$2-10M	5	10	2	1
>\$10M	4	25	20	10
TOTAL	249	51%	15%	7%

- Business concentration is highest among software products companies with over 60% of their business, on average, coming from the primary product. Even companies over \$10 million still get 50% of their revenues in this way.
- The scope and depth of the computer services industry, in general, is supported by this analysis which demonstrates the wide variety of specialty applications and the degree of concentration of individual company businesses.
- On the other hand, the degree of concentration in single products explains partially the feeling of vulnerability which many computer services companies have. This especially applies to the small processing companies with heavy concentration in accounting and general business applications.
- It should be noted that many of the areas advanced by respondents as specialties would not normally be categorized as such by INPUT.
 - Thus, some processing companies gave "Data Base Management Systems" as specialty application products; INPUT classifies such services as "Utility Services."
 - In other words, many services companies specialize in non-specialist areas and quite properly regard them as "specialties."
 - For this analysis, however, the data given by respondents were used (with minor exceptions) since it is the degree of specialization of companies which was to be measured.

2. POTENTIAL FOR NEW BUSINESS

- For small processing services companies, the potential for new business is enormous:

- Concentration of applications shows that new applications can be offered to the same client base they currently have.
- Particular applications to add lie in the analytical areas such as budgeting, market research and planning as well as text areas like mail list processing. Such applications demand will filter down to even smaller user companies and services companies must be able to respond.
- Industry orientation should be increased so that specialization will reduce vulnerability and increase value.
- Packaging of hardware into services provides some opportunity but a lot of vulnerability at this size level. One reasonable approach is to license software to a subsidiary set up separately for this purpose or to another company.
- Small companies now sell to small companies; with specialty products they can sell to larger companies in their geographic or industry area.
- Installations of small computers should be regarded as an opportunity for mini-FM by small processing services companies whereby they can be responsible for training, documentation, user education, conversion and implementation, programming support, and management. Over 500,000 small business computer installations by the mid-1980s will provide a major opportunity.
- Changes in mainframe and terminal costs, characteristics, and software make remote computing, particularly remote data entry and information retrieval, possible for even the smallest processing company. This allows for a whole new area of expansion as well as defense against the feared "depravation" of the minicomputer suppliers.

- Medium-sized processing companies will find potential for new business primarily in adding new applications to existing industry specialization, and by geographic expansion.
 - Particular application areas to concentrate on are financial planning and analysis, market research, and other staff-related functions.
 - The opportunity in medium-sized organizations for computer services is just emerging.
 - Geographic expansion of specialty services is still very feasible. Few areas are saturated, particularly in second tier cities and below.
 - New applications in inter- and intra-company communications, particularly for medium sized companies, will provide opportunities.
 - Integration of information (as opposed to just data) handling equipment and services provides a major growth opportunity for medium and small users: message handling, printing, information storage and retrieval are all areas of specialization to be attacked.
- Large processing companies have major opportunities derived from the confluence of communications and data processing. Value added network (VAN) services for data, text, message handling, video, and facsimile will expand rapidly over the next 5 years.
 - For all computer services companies, but especially large, network-based, processing companies, the changes in communications in the 1980s will create major new opportunities for electronic mail, distributed data processing, and new industry applications.
 - Data and information bases are a multi-billion dollar opportunity for national and international processing services companies.

- The printing and publishing side of corporate activities is ripe for a services approach (Xerox itself is now providing facilities management of large reproduction centers).
- Increased requirements for engineering productivity will fuel the growth for scientific and engineering applications particularly graphics oriented packages and services.
- Also industries using engineering, particularly in manufacturing, will be prime targets for engineering management services.
- Medium and small processing companies that previously have not been able to offer such services because of equipment restrictions will find such barriers disappearing. Scientific and engineering specialties will increasingly be offered by all levels of processing services companies.
- The explosion in use of implementation languages such as GIS, RAMIS and Mark IV and of data base management systems such as IMS, TOTAL, FOCUS, ADABAS, and System 2000 creates opportunities for all computer services companies:
 - Processing services companies will use them for problem solving (still a major specialty area) and for development of new applications.
 - Software product companies can foresee a new generation of Information Base Management Systems (IBMS) providing major revenue potential. Also, there will be increasing needs for subsidiary packages such as accounting and control packages.
 - Professional services companies can project a rapidly expanding market for services in the selection and implementation of DBMS and for increased requirements for systems development staff who can use the products.

- Distributed data processing (DDP) will not achieve full implementation until the 1980s and will not be as extensive in many ways as predicted:
 - Large processing services companies can provide the DDP capability (almost as a utility) to medium and large companies.
 - The requirement for evaluation and implementation assistance from professional services organizations will be enormous.
 - For software products companies, a whole new generation of applications products will be required. Larger companies will be better able to take full advantage of this opportunity.
 - However, the need for systems control, loading, accounting, balancing and other functions will create major new opportunities for systems products for all sizes of software product companies.
- Changes in applications development techniques will create an increasing need for support packages.
 - Programming development aids were the most frequent single category of utility-oriented, specialty packages reported by software product respondents.
 - Project planning and control as well as documentation control are also major growth opportunities. When annual software expenditures are of the order of \$10 billion and increasing, there is a major market for all kinds of measurement, management, and development aids.
- Professional services companies have opportunities for growth in almost every aspect of computer services:
 - Package custom software where appropriate, particularly using new implementation languages.

- Use VANS as delivery vehicle for new services based on these packages, buying computer time from any local supplier.
- Provide transference of technology, systems, communications and other developments to actual user applications.
- Concentrate on both basic and analytical applications in functional areas, such as finance, planning, and manufacturing.
- Be alert for new applications in information handling, particularly related to areas such as electronic mail and information storage and retrieval.

V COMPUTER SERVICES MARKETS
1977 - 1982

V COMPUTER SERVICES MARKETS 1977-1982

A. MARKET ANALYSES BY TYPE OF PRODUCT

- The computer services marketplace is increasingly differentiated by type of product as the evolution proceeds from the initial offerings of batch services and raw time.
- In the 1978 ADAPSO survey, respondents were requested to provide data on the distribution of 1977 revenues. This distribution was used to place the respondent in a type of company category according to the dominant service type; e.g., processing services, software products or professional services.
- Information was also gathered by service type concerning growth by product category.
 - Within processing services (which includes interactive, remote batch, batch and facilities management), four types of products are included: general business, scientific and engineering, industry specialty and utility.
 - Within software products, two types are included: applications packages and systems packages.
 - Within professional services two types are included: custom/contract software and consulting/education/training.

- The ADAPSO survey forecast shown in Exhibit V-1 was developed by totaling the amount of revenue in each type of business reported by each respondent to yield 1977 revenues. The weighted average growth rates forecasted by respondents were applied to those totals to provide the 1982 revenues.
- In Exhibit V-2 an analysis of relative profitability by type of business is presented.
 - In constructing these figures, the percent of revenues by type of business was multiplied by 1977 revenues. This figure was then multiplied by 1977 profit per respondent. The accumulated totals were then used to determine overall profitability.
 - The assumption in Exhibit V-2 is therefore that each respondent's profit margin was equal on each type of business. Over the large sample the inaccuracies from this technique are largely offsetting.
- In the following section, each type of business is discussed separately.

I. GENERAL BUSINESS

- Vendors supply the processing and applications software for applications which are common to users across industry categories. Software is provided by the vendor; this can be a complete package, such as a payroll package, or an application "tool" such as a budgeting model where a user provides much of the customizing of the finished product. General business processing is often repetitive and transaction oriented. Typical applications are payroll and accounts receivable.
- Respondents overstated revenues in this category significantly relative to this definition. Much of what INPUT considers utility because applications software is not provided by the vendor is often perceived by the vendor as general business because the end user is doing general business processing using its own software.

EXHIBIT V-1

FORECASTS OF GROWTH BY TYPE OF SERVICE, 1977-1982

TYPE OF SERVICE	REVENUES		
	1977 (2) (\$ MILLION)	1982 (\$ MILLION)	% (1) GROWTH
<u>PROCESSING SERVICES</u>			
GENERAL BUSINESS	\$ 1,500	\$ 2,520	11%
SCIENTIFIC AND ENGINEERING	427	750	12
INDUSTRY SPECIALTY	2,670	7,500	23
UTILITY	800	1,500	14
<u>SOFTWARE PRODUCTS</u>			
APPLICATIONS PACKAGES	\$ 365	\$ 1,350	30%
SYSTEMS PACKAGES	214	312	8
<u>PROFESSIONAL SERVICES</u>			
CUSTOM PROGRAMMING	\$ 897	\$ 1,900	17%
CONSULTING/ EDUCATION	69	140	16
TOTAL (3)	\$ 7 BILLION	\$ 16 BILLION	17%

- (1) Average of 1977 versus 1976 growth and 1978 versus 1977 forecast, factored downward to average the overall forecasted growth rate. Respondents to the ADAPSO survey forecasted growth of 17% for the next 5 years.
- (2) The totals per type of service vary somewhat from totals shown in earlier sections, because the earlier sections were developed based on type of company; the earlier breakdown was provided to facilitate comparisons to company-related parameters and product mix.
- (3) Revenues in this chart include captive and non-U.S. revenues.

EXHIBIT V-2

RELATIVE PROFIT OF PRODUCT CATEGORIES BASED ON

RESPONDENTS' PROFITABILITY

PRODUCT CATEGORY	% OF TOTAL 1977 REVENUES	% PROFIT BEFORE TAX
PROCESSING SERVICES		
GENERAL BUSINESS	22%	10.9%
SCIENTIFIC AND ENGINEERING	6	9.0
INDUSTRY SPECIALTY	39	12.2
UTILITY	11	11.2
TOTAL PROCESSING SERVICES	78%	11.4%
SOFTWARE PRODUCTS		
APPLICATIONS PACKAGES	5	5.7
SYSTEMS PACKAGES	3	17.5
TOTAL SOFTWARE PRODUCTS	8%	10.0%
PROFESSIONAL SERVICES		
CUSTOM/CONTRACT SOFTWARE	13	9.4
CONSULTING, EDUCATION, TRAINING	1	12.6
TOTAL PROFESSIONAL SERVICES	14%	9.6%
TOTAL	100%	11.3%*

*WEIGHTED AVERAGE

- The relative profitability of general business is 10.9% slightly lower than the industry average of 11.3%.

2. SCIENTIFIC AND ENGINEERING

- Vendors provide the software and do the processing of scientific and engineering problems for users across industries. The problems usually involve the solution of mathematical equations. Processing is generally problem solving and non-repetitive except in the sense that the same packages or "tools" are used to address different but similar problems.
 - The growth rate of 12% and the profit of 9% are the lowest of any type of business.
 - Understandably, this type of business attracts few new entrants but current vendors can anticipate continued growth and reasonable profitability.

• 3. INDUSTRY SPECIALTY

- These services provide processing for particular functions or problems unique to an industry or industry group. The software is provided by the vendor either as a complete package or as an application "tool" which the user employs to produce its unique solution. Specialty applications can be either business or scientific in orientation; data base services where the vendor supplies the data base and controls access to it (although it may be owned by a third party) are also included under this category. Examples of industry specialty applications are: seismic data processing, numerically controlled machine tools, and demand deposit accounting.
- Respondents forecast a high growth rate. In INPUT's opinion, it is optimistic because smaller companies who make up the majority of the respondents are forecasting from a smaller revenue base and tend to forecast higher percentage growth rates.

- Many vendors are attracted by the higher "value added" of industry specialty products and the resultant higher profit potential; this is supported by the higher average profit for industry specialty of 12.2% vs. 11.4% for the average of processing services.

4. UTILITY

- The vendor provides access to a computer and/or communications network with basic software that enables any user to develop its own problem solution or processing system. These basic tools include terminal handling software, sorts, language compilers, data base management systems, information retrieval software, scientific library routines and other systems software. As such, it also includes "raw time."
 - INPUT expects this sector growth to be slightly higher than the results of the ADAPSO survey. This higher estimate is supported by the strong growth of Data Base Management Systems Services based on products such as RAMIS, MAGNUM, NOMAD, and System 2000.
 - The profitability of utility services at 11.2% approximates the industry average; there is undoubtedly wide profitability differences between products in this category because of the wide spread in value added between raw time and more complex offerings.

5. APPLICATIONS PACKAGES

- These are software packages sold for use on in-house computer systems. They consist of general purpose packages such as for accounting and inventory control and special purpose packages such as personal trust, airline scheduling, and demand deposit accounting.
 - The ADAPSO survey results show a smaller total software market than INPUT forecasts. This is due largely to the inclusion in INPUT's forecast of software revenues from mainframe suppliers, particularly IBM.

- The growth forecast from the ADAPSO survey of 30% is the highest for any product type and reflects the combined positive estimate of respondents from processing as well as software companies.
- The relatively low profit for applications packages is a surprise; it may result partly as a result of the expense of adapting a package to a particular user. However, more research into this area is required before any clear conclusions can be reached. Some respondents complained about "price competition" which would also be a contributing factor.

6. SYSTEMS PACKAGES

- These are packages sold or leased for use on in-house computer systems. Included are operating systems, utilities, and language routines that enable the computer/communications system to perform basic functions. This software is often provided by the mainframe manufacturers with their hardware; other vendors provide improved versions of this and special purpose routines. This classification includes compilers, data base management software, communications packages, simulators, performance measurement software and sorts.
 - Profitability of this type of product is highest, 17.5% vs. 11.3%, for the total industry; this reflects the high profitability of those companies who are successful with these usually complex products.
 - Profitability is also enhanced by the reduced amount of customization necessary per customer as compared to applications packages.
 - The growth rate shown in the ADAPSO survey of 8% is considered to be very low based on other research done by INPUT. In particular, Data Base Management Systems Software is expected to grow rapidly and exceed by 1982 the entire systems packages market shown in Exhibit V-1, according to a recent INPUT research report.

7. CUSTOM/CONTRACT SOFTWARE

- This includes software developed for each client. This can be provided on a basis of "Time and Materials," whereby the client pays for the time used of an individual on a daily or other fixed rate, or "Fixed Price," when the user pays a fixed fee for a specific task or series of tasks.
 - The ADAPSO forecast is higher than INPUT expects because it is largely based on responses from smaller companies.
 - The profitability of this type of business is lower than the industry average, affected largely by the concentration of large, low profit margin, government contracts.

8. CONSULTING, EDUCATION, TRAINING

- These are services to upgrade or enhance client's EDP staffs.
- The smallest category is growing at a rate approximating the industry average and shows an above average profit.

9. FACILITIES MANAGEMENT

- This involves managing all or part of a client's data processing function under a long-term contract (more than one year).
 - On a weighted average basis (multiplying the percentage of FM revenues reported by the respondents 1977 revenues), \$303 million or 11.5% of total 1977 revenues were obtained on this basis.
 - These revenues are also counted within the types of processing services listed in paragraphs 1-4 above and are distributed as follows: Processing companies, \$288 million (95%), software products companies, \$0.8 million (0.3%), and professional services companies, \$13.8 million (4.7%).

B. COMPUTER SERVICES MARKETS BY INDUSTRY SECTOR

I. COMPARISON OF 14 INDUSTRY SECTORS

- The proportion of computer services companies' revenues in each industry sector varied significantly according to whether the average of vendor responses or the weighted (by vendor revenue) averages were used.
 - This is particularly true in professional services where several large, government-oriented respondents cause major alterations in the distribution.
 - The weighted averages are used in the analysis because they consider the relative impact of companies by size. Results are presented in Exhibit V-3.
- Taking the weighted average of responses and projecting to the total \$6.3 billion 1977 available U.S. revenues for companies represented by the survey gives the industry sector market sizes shown in Exhibit V-4.

2. RELATIVE GROWTH IN IMPORTANCE

- As shown in Exhibit V-5, there are five specific industry sectors which have more than 2 to 1 ratio of positive indications of growth to negative, based on responses to the 1978 ADAPSO survey.
 - These industry sectors (discrete and process manufacturing, wholesale, banking and finance and services) are also main targets for minicomputers, so the positive indications by computer services companies is an expression of their confidence.

EXHIBIT V-3

RESPONDENTS' PROPORTIONAL REVENUE DISTRIBUTION BY INDUSTRY SECTOR

INDUSTRY SECTOR	PROPORTION OF VENDOR REVENUES %			
	PROCESSING SERVICES COMPANIES	SOFTWARE PRODUCTS COMPANIES	PROFESSIONAL SERVICES COMPANIES	TOTAL
	WEIGHTED AVERAGE	WEIGHTED AVERAGE	WEIGHTED AVERAGE	WEIGHTED AVERAGE
DISCRETE MANUFACTURING	8.2%	11.7%	2.9%	7.5%
PROCESS MANUFACTURING	7.1	5.1	2.3	6.1
TRANSPORTATION	1.5	3.8	1.2	1.6
UTILITIES	5.7	3.1	2.9	5.0
BANKING & FINANCE	21.6	9.0	4.6	17.8
INSURANCE	7.3	17.2	2.7	7.2
MEDICAL	13.8	4.1	2.7	11.2
EDUCATION	1.2	4.2	-	1.2
RETAIL	4.9	2.6	0.6	4.0
WHOLESALE	4.4	5.7	1.0	3.9
FEDERAL GOVERNMENT	7.1	17.3	60.0	16.9
STATE & LOCAL GOVERNMENT	1.5	7.2	7.7	3.0
SERVICES	5.3	4.5	3.5	4.9
OTHER INDUSTRIES	10.6	4.3	8.0	9.7
TOTAL	100.2%	99.8%	100.1%	100.0%
NUMBER OF RESPONDENTS	199	51	43	293

EXHIBIT V-4

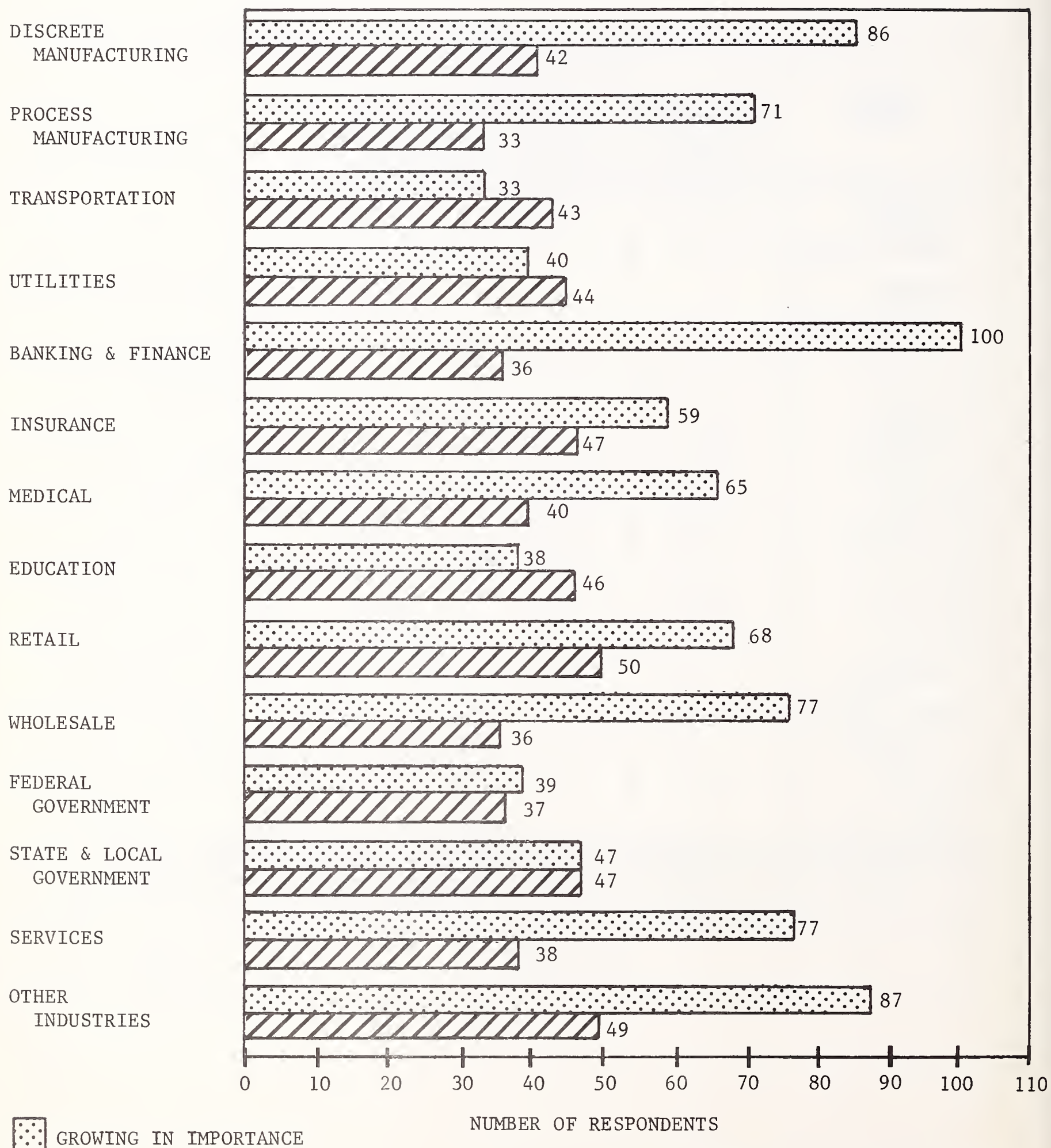
TOTAL COMPUTER SERVICES VENDOR REVENUES BY INDUSTRY SECTOR

INDUSTRY SECTOR	1977 REVENUES			TOTAL
	PROCESSING SERVICES COMPANIES	SOFTWARE PRODUCTS COMPANIES	PROFESSION- AL SERVICES COMPANIES	
DISCRETE MANUFACTURING	\$ 385	\$ 70	\$ 25	\$ 480
PROCESS MANUFACTURING	335	30	20	385
TRANSPORTATION	70	25	10	105
UTILITIES	270	20	25	315
BANKING & FINANCE	1,015	55	40	1,110
INSURANCE	345	105	25	475
MEDICAL	645	25	25	695
EDUCATION	60	25	-	85
RETAIL	230	15	5	250
WHOLESALE	205	35	10	250
FEDERAL GOVERNMENT	335	105	540	980
STATE & LOCAL GOVERNMENT	70	45	70	185
SERVICES	250	25	30	305
OTHER INDUSTRIES	500	25	90	615
TOTAL	\$4.7B	\$0.6B	\$1.0B	\$6.3B

(\$ MILLION)

EXHIBIT V-5

INDUSTRY SECTOR GROWTH IN IMPORTANCE



SOURCE: 1978 ADAPSO SURVEY

- "Other Industry" areas are also a significant growth source in the opinion of respondents.
- The poor showing of government and the government related industry sectors of utilities and education is notable.

VI VENDOR PERFORMANCE

VI VENDOR PERFORMANCE

A. FINANCIAL DATA ON PUBLIC COMPANIES

- Published results on 18 public computer services companies are shown in Exhibit VI-1.
 - These companies represent 18.5% of estimated total 1977 computer services industry revenues.
 - They are predominately processing services companies.
 - Their average growth in revenues in 1977 vs. 1976 was 19%; this compares to a 19% industry growth estimate based on the 1978 ADAPSO survey.
 - Their average profit before tax on revenues was 13% in 1976 and 14% in 1977 compared to 9.9% and 11.3% respectively for the respondents to the ADAPSO survey.
 - The above comparisons add substance to the results of the ADAPSO survey in that public companies in the industry are actually performing at growth and profit levels equal to or slightly better than the 309 companies included in the survey (many of the public companies in Exhibit VI-1 also participated in the survey).

EXHIBIT VI-I

PUBLISHED RESULTS OF PUBLIC COMPUTER SERVICES COMPANIES

COMPANY NAME	FISCAL YEAR END		1977 (IN MILLIONS)	1976	% GROWTH 1976-1977	% PROFIT ON REVENUES
ANACOMP	6/30	R P	\$ 16.18 2.47	\$ 12.85 1.59	25.91% 55.35	76 77 12.37% 15.27
APPLIED DATA RESEARCH	12/31	R P	16.93 3.03	12.91 1.97	31.13 69.27	76 77 15.26 17.90
AUTOMATIC DATA PROCESSING	6/30	R P	245.49 45.97	199.24 36.98	23.21 24.31	76 77 18.56 18.73
BRADFORD NATIONAL	12/31	R P	80.61 6.05	65.80 5.67	22.50 6.70	76 77 8.62 7.51
BRANDON APPLIED SYSTEMS	2/28	R P	7.59 0.59	5.81 (0.94)	30.64 -	76 77 - 7.77
COMPU-SERV	12/31	R P	14.33 1.66	11.40 1.59	25.70 4.40	76 77 13.95 11.58
COMPUTER SCIENCES CORP.	3/31 (FISCAL 1978)	R P	276.91 13.88	234.75 11.64	18.00 19.00	76 77 4.95 5.01
COMSHARE	6/30	R P	18.21 2.27	13.76 1.29	32.34 76.00	76 77 9.38 12.47
ELECTRONIC DATA SYSTEMS	6/30	R P	164.18 28.51	132.95 26.63	23.49 7.06	76 77 20.03 17.37
KEYDATA	6/30	R P	14.47 0.35	14.88 1.63	(2.76) (78.53)	76 77 10.95 2.42

R = REVENUES (GROSS)

P = PROFITS (BEFORE TAXES & EXTRAORDINARY ITEMS)

EXHIBIT VI-I (contd.)

PUBLISHED RESULTS OF PUBLIC COMPUTER SERVICES COMPANIES

COMPANY NAME	FISCAL YEAR END		1977 (IN MILLIONS)	1976	% GROWTH 1976-1977	% PROFIT ON REVENUES
NATIONAL CSS	2/28	R P	\$ 41.70 5.48	\$ 35.60 4.39	17.14% 24.83	76 77 12.33% 13.14
NATIONAL DATA CORPORATION	5/31	R P	34.99 4.16	32.95 3.27	6.19 27.22	76 77 9.92 11.89
ON-LINE SYSTEMS	4/30	R P	16.00 2.27	11.96 1.36	33.78 66.91	76 77 11.37 14.19
QUOTRON	12/31	R P	33.35 7.58	24.64 4.38	35.35 73.06	76 77 17.78 22.73
RAPIDATA	12/31	R P	17.91 1.84	15.62 0.80	14.66 130.00	76 77 5.12 10.27
SHARED MEDICAL	12/31	R P	45.69 13.27	35.47 9.27	28.81 43.15	76 77 26.14 29.04
SYSTEMS DEVELOPMENT	6/30	R P	130.09 4.86	109.94 4.27	18.33 13.82	76 77 3.88 3.74
TYMSHARE	12/31	R P	101.17 15.81	81.83 13.16	23.63 20.14	76 77 16.08 15.63
TOTALS		R P	\$1,275.80 \$ 161.05	\$1,052.36 \$ 129.02	19%* 25%*	76 77 13%* 14%*

*WEIGHTED AVERAGES

R = REVENUES (GROSS)

P = PROFITS (BEFORE TAXES & EXTRAORDINARY ITEMS)

- The very large public companies - Automatic Data Processing, Computer Sciences Corporation, Electronic Data Systems, and Tymshare - are all growing as fast or faster than the industry average. This indicates that the growth rate is not purely the result of many small companies growing from a small base. ADP and Tymshare have major acquisition programs; CSC has just embarked on one.
- One of several large computer services companies not included in Exhibit VI-1 because its reported profits are consolidated with non-services revenues is Planning Research Corporation; the groups which make up PRC Information Services aggregated approximately \$90 million in 1977 annual revenues, an increase of 33% over prior year levels.

B. VENDOR/CUSTOMER RATIOS

- A prime resource of the computer services industry is its large customer base.
 - Respondents were serving over 222,000 customers in 1977 with the average revenue per customer being \$11,800.
- Average revenue per customer varies widely by type and size of company as shown in Exhibit VI-2.
 - Medium sized software companies have the lowest revenues per customer while large professional services companies have the largest. What is notable is that medium sized software companies also had the highest profit ratio indicating that small customers can be profitable.
- Although larger services companies tend to have larger average revenues per customer, the relationship is not a direct one with processing companies in the \$10-25 million range having much higher average revenues per customer (\$19,300) than those companies with greater than \$25 million in revenues (\$12,800).

EXHIBIT VI-2

DISTRIBUTION OF CUSTOMERS BY TYPE AND SIZE OF COMPANY

TYPE OF COMPANY	SIZE 1977 REVENUES (\$ MILLION)	RESPONDENTS' TOTAL 1977 REVENUES (\$ MILLION)	RESPONDENTS' TOTAL NUMBER OF CUSTOMERS	ANNUAL REVENUES PER CUSTOMER (\$ THOUSAND)
PROCESSING SERVICES	< \$2M	\$ 92.2M	16,037	\$ 5,750
	2-10	200.6	36,830	5,500
	10-25	177.4	9,184	19,300
	> 25	1,559.4	121,500	12,800
SOFTWARE PRODUCTS	< \$2	\$ 26.8	6,885	\$ 3,900
	2-10	39.1	13,359	2,900
	> 10	137.8	13,000	10,600
PROFESSIONAL SERVICES	< \$2	\$ 7.6	1,303	\$ 5,800
	2-10	55.7	2,070	26,900
	> 10	326.0	1,945	167,600
TOTAL		\$ 2,622.6M	222,113	\$ 11,800

C. KEYS TO PROFIT

- The diversity of the computer services industry makes it particularly difficult to generalize about any single characteristic and relate it to profit. Out of the foregoing analysis, however, several conclusions can be drawn:
 - Companies involved in industry specialized products tend to have higher profits than those who are not.
 - Systems software packages have a particularly high profit potential.
 - Faster growth and higher profit are positively linked, particularly for processing companies.
- As a final part of the analysis of the data gathered in the survey, a series of regression analyses were run to relate key parameters of profit and growth.
- With regard to marketing compensation, companies spending more as a percentage of total 1977 expenditures were generally more profitable.
 - For processing companies, a 10% increase in marketing compensation related to an average 6% increase in profitability.
 - For professional services companies a 10% increase in marketing compensation related to a 3% increase in profitability.
- For software products companies there was no measurable relationship between percent marketing compensation and profits.
- With regard to operations compensation, companies spending more as a percentage of total 1977 expenditures tended to be less profitable although the relationship was less defined than with marketing compensation.

- For processing and professional services companies a 10% increase in percentage of operations compensation resulted in an average 1% reduction in profits.
- For software products companies the reduction may be as high as 2%.
- Growth has a very positive impact on profits.
 - A 10% increase in revenue results in an average 5% increase in profits.
 - This relationship was consistent across processing, software and professional services companies.
- With regard to the age of the companies:
 - Older companies in all three categories had lower growth.
 - . Processing companies showed an average of 1% reduction in growth for every year of age.
 - . Software and professional services companies showed an average of 3% reduction in growth for every year of age.
- The consistent relationship of marketing, growth and profit supports the optimism of the computer services industry.
 - Boundaries to growth and profit are not apparent.
 - New entries as well as existing companies are prospering. This is evidenced by the uniformity of profitability across company types and sizes discussed earlier, and by the continued entry of companies into the industry.

- Exhibit VI-3 shows that new companies continue to form. The rate of formation in 1975-77 is undoubtedly greater than indicated by the exhibit, because newer companies are more difficult to locate and would tend to be underrepresented in the survey which is the basis for the exhibit.
- The exhibit does show a significant shift from the predominant formation of processing services companies in the 1960-1969 period to an almost equal rate of formation of processing services, software products, and professional services companies in the 1975-1977 period.
- In conclusion, there is every indication that the computer services industry is in good health.

EXHIBIT VI-3

YEAR RESPONDENTS ENTERED BUSINESS BY TYPE OF COMPANY AND 1977 REVENUE SIZE

YEAR ENTERED	PROCESSING					SOFTWARE				SERVICES				TOTAL
	1*	2	3	4	TO-TAL	5	6	7	TO-TAL	8	9	10	TO-TAL	
PRIOR TO 1954	3			2	5									5
1955 - 1959	11	4			15		1	1	2			1	1	18
1960 - 1964	15	6		2	23	1		2	3	3		1	4	30
1965	5	4	1		10		1		1	1	1		2	13
1966	9	2	1	1	13				-		1		1	14
1967	8	2	2	2	14	2	1		3		1	1	2	19
1968	15	4	1	3	23	4	3	1	8	2	3		5	36
1969	17	15	4	1	37	4			4	1	3		4	45
1970	14	2	2	1	19	5	2		7	2	1	1	4	30
1971	8	3			11	6	1		7	2			2	20
1972	7	1			8	4			4	3			3	15
1973	8				8	4			4	3			3	15
1974	8	1			9	5			5	4			4	18
1975	4				4	2			2				-	6
1976	2			1	3	3	1		4	5			5	12
1977	2	1			3	3			3	1			1	7
NOT IDENTIFIED	3			1	4	1	1		2				-	6
TOTAL	139	45	11	14	209	44	11	4	59	27	10	4	41	309

- * 1,5,& 8 = <\$2 MILLION IN 1977 COMPUTER SERVICES REVENUES.
2,6,& 9 = \$2-10 MILLION IN 1977 COMPUTER SERVICES REVENUES.
3,7,&10= \$10-25 MILLION IN 1977 COMPUTER SERVICES REVENUES.
4 = >\$25 MILLION IN 1977 COMPUTER SERVICES REVENUES.

APPENDIX A: DATA BASE

EXHIBIT A-I

METHODOLOGY

- The methodology followed was to mail the questionnaire to 3,500 potential respondents.
 - All companies with revenues of \$10 million and over were contacted by phone to expedite the response.
 - ADAPSO made a special effort in developing responses from its members.
 - Of 340 responses obtained, 309 contained the data required and were incorporated in the analyses.
 - Data gathering took place in March and April, 1978, with analysis and writing being completed in June.
 - Data from INPUT's library and research facilities are included to complete the analysis and expand on the survey findings where appropriate. Where this has been done, the data is identified as INPUT's.

- To ensure the validity of the analysis, a special test was made to determine the statistical reliability of the results. The total market size estimate of companies with revenues under \$10 million was evaluated under the relationship

$$\bar{X} \pm 1.96 \frac{S}{\sqrt{n}} \sqrt{\frac{N-n}{N-1}}$$

Where:

- \bar{X} = The sample mean.
- S = The standard deviation.
- n = The sample size.
- N = The population size.

- The calculation provided a 95% confidence level that the actual market size is within \$220,000 or 7% of the reported total.

- Categorization of Companies by Product

- Section C of the questionnaire requested percentage revenues by type of product. The products were grouped into three categories: Processing Services, Software Products, and Professional Services.
- A company was placed in the category which accounted for over 50% of its 1977 revenues.
- Of the 309 respondents used in the analysis, only 5 did not clearly fall into a specific category. These companies can be called "multiservice vendors." Because they are so few in number, a separate analysis was not performed on them. Rather, they were placed in the product category most appropriate to their market image or expenditure pattern.

- Categorization by Size

- Section A of the questionnaire requested total 1977 Computer Services Revenues. Companies were categorized based on these revenues into three groupings: Less than \$2 million, \$2-10 million, and over \$10 million. Because of the importance of Processing Companies over \$25 million, a separate category was created to analyze these companies.
 - Captive revenues and non-U.S. revenues were included in the total figure; they are broken out where appropriate in the report itself to provide available U.S. revenues. Revenues for non-consolidated foreign affiliates were reported separately and are not included in total revenues.
- In the data base which follows, the key data elements are presented for each of the ten company type/size categories in the analysis. This facilitates comparisons across the total respondent population.

APPENDIX A-2

COMPARISON OF RESULTS FROM RESPONDING PROCESSING SERVICES COMPANIES TO THE RESULTS OF THE TOTAL SURVEY

CATEGORY	RESPON- DENTS	PROCESSING SERVICES				
		< \$2M	\$2-10M	\$10-25M	> \$25M	TOTAL
1977 REVENUES (\$MILLION)	\$ 2,622	\$ 92	\$ 200	\$ 177	\$1,559	\$2,029
1977 ACTUAL PROFIT (\$MILLION)	\$ 294	\$ 10	\$ 19	\$ 18	\$ 187	\$ 235
1977 % PROFIT	11%	11%	9%	10%	12%	11%
NUMBER OF EMPLOYEES	78,200	5,463	6,158	3,354	45,213	60,188
1977 REVENUES PER EMPLOYEE (\$ THOUSAND)	\$ 33	\$ 17	\$ 33	\$ 52	\$ 35	\$ 34
1977 PROFIT PER EMPLOYEE (\$ THOUSAND)	\$ 4	\$ 2	\$ 3	\$ 5	\$ 4	\$ 4
TOTAL NUMBER OF CUSTOMERS	222,113	16,037	36,830	9,184	121,500	183,551
NUMBER OF COMPANIES RESPONDING	309	133	46	11	16	206
ESTIMATED NUMBER OF COMPANIES IN U.S.	3,000	1,660	230	22	30	1,942

APPENDIX A-3

COMPARISON OF RESULTS FROM RESPONDING SOFTWARE PRODUCTS COMPANIES TO THE RESULTS OF THE TOTAL SURVEY

CATEGORY	RESPON- DENTS	SOFTWARE PRODUCTS			
		< \$2M	\$2-10M	> \$10M	TOTAL
1977 REVENUES (\$MILLION)	\$ 2,622	\$ 26	\$ 39	\$ 137	\$ 203
1977 ACTUAL PROFIT (\$MILLION)	\$ 294	\$ 3	\$ 8	\$ 12	\$ 23
1977 % PROFIT	11%	11%	20%	9%	11%
NUMBER OF EMPLOYEES	78,200	686	899	3,597	5,182
1977 REVENUES PER EMPLOYEE (\$ THOUSAND)	\$ 33	\$ 39	\$ 43	\$ 38	\$ 39
1977 PROFIT PER EMPLOYEE (\$ THOUSAND)	\$ 4	\$ 4	\$ 9	\$ 3	\$ 4
TOTAL NUMBER OF CUSTOMERS	222,113	6,885	13,359	13,000	33,244
NUMBER OF COMPANIES RESPONDING	309	46	9	5	60
ESTIMATED NUMBER OF COMPANIES IN U.S.	3,000	560	50	8	618

APPENDIX A-4

COMPARISON OF RESULTS FROM RESPONDING PROFESSIONAL SERVICES COMPANIES TO THE RESULTS OF THE TOTAL SURVEY

CATEGORY	RESPON- DENTS	PROFESSIONAL SERVICES			
		< \$2M	\$2-10M	> \$10M	TOTAL
1977 REVENUES (\$ MILLION)	\$ 2,622	\$ 8	\$ 56	\$ 326	\$ 389
1977 ACTUAL PROFIT (\$ MILLION)	\$ 294	\$ 1	\$ 5	\$ 30	\$ 37
1977 % PROFIT	11%	12%	10%	9%	9%
NUMBER OF EMPLOYEES	78,200	269	1,931	10,630	12,830
1977 REVENUES PER EMPLOYEE (\$ THOUSAND)	\$ 33	\$ 28	\$ 29	\$ 31	\$ 30
1977 PROFIT PER EMPLOYEE (\$ THOUSAND)	\$ 4	\$ 3	\$ 3	\$ 3	\$ 3
TOTAL NUMBER OF CUSTOMERS	222,113	1,303	2,070	1,945	5,318
NUMBER OF COMPANIES RESPONDING	309	29	10	4	43
ESTIMATED NUMBER OF COMPANIES IN U.S.	3,000	360	50	7	417

APPENDIX A-5

RESPONDENTS' REVENUES BY PRODUCT CATEGORY PERCENTAGE OF TOTAL

PRODUCT CATEGORY	SIZE TYPE OF COMPANY	RESPON- DENTS	PROCESSING SERVICES				SOFTWARE PRODUCTS			PROFESSIONAL SERVICES		
			< \$2M	\$2-10M	\$10-25M	> \$25M	< \$2M	\$2-10M	> \$10M	< \$2M	\$2-10M	> \$10M
PROCESSING SERVICES												
	GENERAL BUSINESS	22.3%	38.0%	27.7%	28.5%	27.1%	4.2%	2.0%	3.3%	9.1%	5.7%	6.8%
	SCIENTIFIC AND ENGINEERING	6.1	2.2	2.7	7.2	8.3	0.9	0.9	4.8	0.4	0	2.6
	INDUSTRY SPECIALTY	38.5	39.5	49.9	28.3	50.0	1.3	2.2	5.6	20.0	7.4	3.0
	UTILITY	11.5	9.0	8.5	30.1	11.3	0.8	0.3	6.4	0.3	0.1	14.2
SOFTWARE PRODUCTS												
	APPLICATIONS PACKAGES	5.4	3.8	7.2	3.4	0.8	68.4	22.3	25.0	1.9	2.8	0.3
	SYSTEMS PACKAGES	3.1	0.8	0.2	0.4	0.1	15.6	64.0	32.4	1.1	0.4	0.5
PROFESSIONAL SERVICES												
	CUSTOM CONTRACT SOFTWARE	13.0	6.0	3.5	2.1	2.3	6.2	2.7	21.3	53.2	80.3	67.7
	CONSULTING/EDUCATION/ TRAINING	0.1	0.7	0.3	0.0	0.1	2.6	5.6	1.2	14.0	3.3	5.0
	TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

APPENDIX A-6

RESPONDENTS' PERCENTAGE OF REVENUES BY USER INDUSTRY SECTOR

INDUSTRY	TOTAL RESPONDENTS	PROCESSING SERVICES				SOFTWARE PRODUCTS			PROFESSIONAL SERVICES		
		<\$2M	\$ 2-10M	\$10-25M	>\$25M	<\$2M	\$2-10M	>\$10M	<\$2M	\$2-10M	>\$10M
DISCRETE MANUFACTURING	13.5%	14.0%	9.9%	12.5%	8.1%	12.1%	18.4%	14.7%	23.9%	7.2%	4.0%
PROCESS MANUFACTURING	8.2	9.1	5.5	4.5	12.3	8.3	2.0	5.3	10.4	1.8	9.5
TRANSPORTATION	2.1	1.9	0.7	2.2	1.6	2.6	16.0	3.7	1.8	2.4	1.0
UTILITIES	3.1	2.4	2.7	7.1	6.4	2.0	2.6	5.3	3.3	8.8	1.3
BANKING & FINANCE	17.7	12.0	30.0	22.7	20.4	18.0	5.8	11.7	12.4	15.7	4.8
INSURANCE	7.3	4.8	12.0	4.8	10.1	5.5	25.8	12.3	10.3	3.7	9.0
MEDICAL	5.4	5.7	9.4	0.1	8.1	2.8	7.4	4.7	2.9	3.0	0.7
EDUCATION	3.0	3.4	1.2	0.6	0.4	4.9	7.4	4.0	3.6	0.1	0.0
RETAIL	8.4	11.5	9.1	11.2	4.6	4.7	2.2	5.7	4.3	1.4	1.5
WHOLESALE	9.1	12.8	4.1	8.5	4.4	10.8	1.4	5.0	6.1	3.2	0.0
FEDERAL GOVERNMENT	4.3	1.0	1.7	11.9	8.9	3.4	2.4	12.3	5.7	26.6	46.8
STATE & LOCAL GOVERNMENT	3.6	2.6	2.3	1.7	0.9	6.6	5.6	9.0	5.3	3.9	13.2
SERVICES (CPAs, LAWYERS, ETC.)	7.1	8.7	7.1	7.2	5.7	7.7	2.4	2.7	2.4	4.8	4.0
OTHER (PLEASE IDENTIFY)	7.2	10.1	4.3	5.0	8.1	10.6	0.6	3.6	7.6	18.2	4.2
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

* Straight averages, not weighted, and therefore differ somewhat from Exhibit V-3.

RESPONDENTS' DISTRIBUTION OF EXPENDITURES AS A PERCENTAGE OF TOTAL 1977 EXPENDITURES

EXPENDITURE TYPE	SIZE TYPE OF COMPANY	TOTAL RESPON- DENTS	PROCESSING SERVICES				SOFTWARE PRODUCTS			PROFESSIONAL SERVICES		
			<\$2M	\$2-10M	\$10-25M	>\$25M	<\$2M	\$2-10M	>\$10M	<\$2M	\$2-10M	>\$10M
Direct personnel compensation												
Total marketing and sales staff		12.2%	10.8%	6.3%	19.3%	11.2%	18.8%	19.4%	15.0%	9.3%	6.3%	5.7%
Research and applications development		12.6	11.0	7.4	5.2	6.5	20.3	15.2	9.7	15.6	6.4	3.0
Operations		19.6	22.4	20.9	12.2	18.0	11.2	12.9	19.7	23.3	43.2	44.0
Other		7.8	8.0	9.0	6.0	8.8	4.3	5.1	10.0	13.3	6.8	4.3
Personnel-related expenditures		7.6	5.7	6.8	8.6	6.5	11.5	10.5	15.7	9.1	8.1	10.7
Computer system equipment and maintenance		17.7	24.0	22.4	18.2	20.5	8.3	5.4	6.0	6.1	6.8	14.0
Data Communications expenditures		2.7	2.1	4.3	8.9	8.3	1.8	1.5	1.0	0.7	1.0	3.7
Freight and postage		2.0	1.8	2.1	1.9	2.4	2.5	3.1	0.7	2.4	0.4	1.3
Payments to third-party software developers		1.7	1.0	1.5	1.7	1.8	3.4	2.7	0.7	3.0	0.9	0.3
Advertising, promotion, seminars, etc.		3.2	2.4	1.7	2.0	1.3	5.4	6.9	3.7	6.4	1.4	0.7
Facility Operations		6.5	7.0	6.8	7.6	6.2	5.8	8.1	4.3	5.8	3.3	5.7
Other		6.4	3.8	10.8	8.4	8.5	6.7	9.2	13.5	5.0	15.4	6.6
TOTAL		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Extraordinary gains		0.9	0.2	0.3	0.2	0.3	1.7	0	0	2.1	2.5	12.5
Extraordinary losses		0.6	0.8	0.3	0	0	1.1	0	0	0.1	0	0

APPENDIX B: OTHER STATISTICS

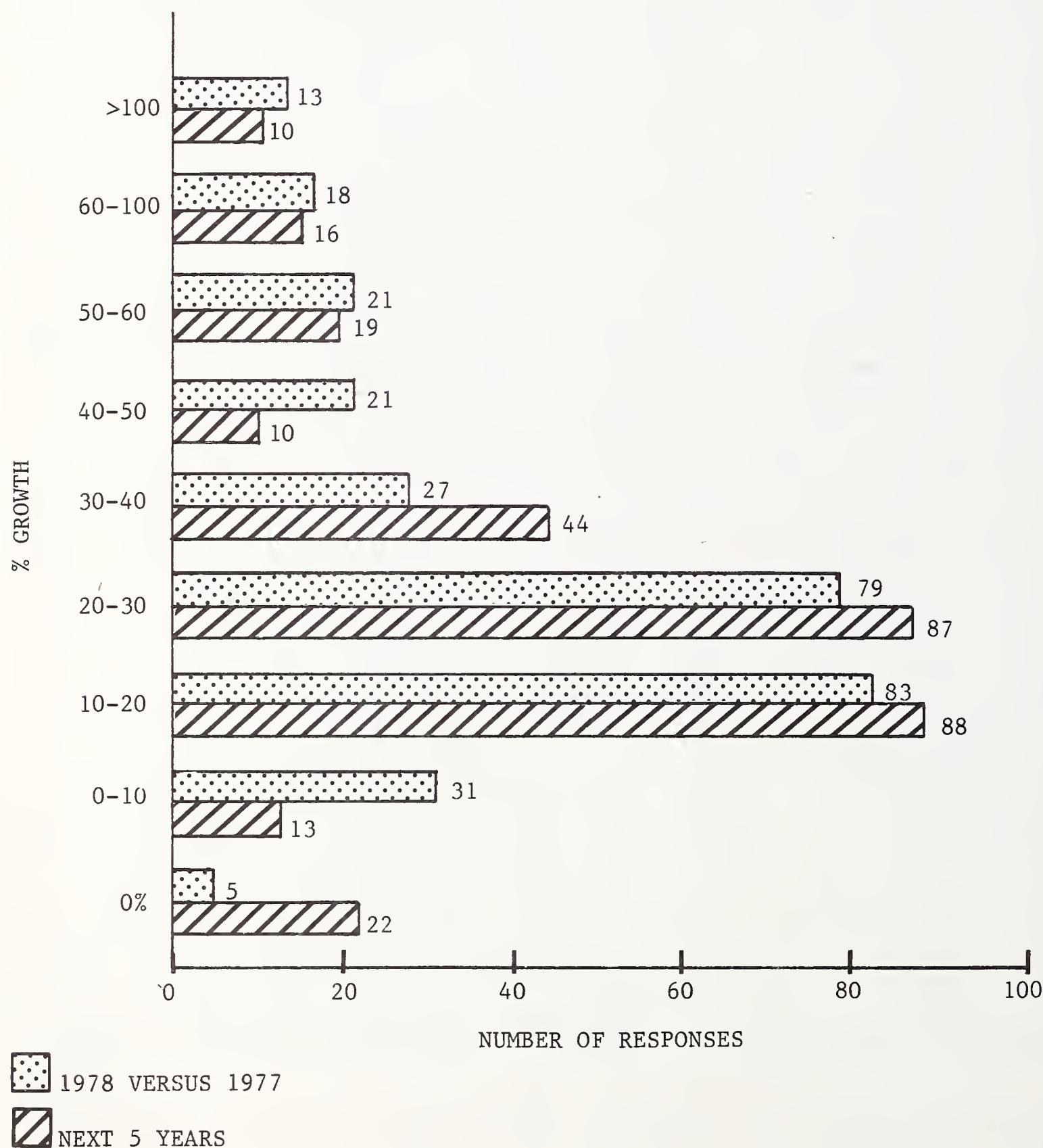
EXHIBIT B-I

DISTRIBUTION OF RESPONDENTS' FISCAL YEAR

MONTH FISCAL YEAR BEGINS	NUMBER OF MENTIONS	RELATIVE FREQUENCY - %
JANUARY	217	69.9%
FEBRUARY	5	1.6
MARCH	6	1.9
APRIL	6	1.9
MAY	7	2.3
JUNE	5	1.6
JULY	23	7.4
AUGUST	4	1.3
SEPTEMBER	10	3.2
OCTOBER	9	2.9
NOVEMBER	11	3.9
DECEMBER	6	1.9
TOTAL	309	100%

EXHIBIT B-2

DISTRIBUTION OF RESPONDENTS' FORECASTED ANNUAL GROWTH



APPENDIX C: QUESTIONNAIRE

ADAPSO QUESTIONNAIRE — 1978

GENERAL INSTRUCTIONS

This questionnaire is designed to be completed by management. The questionnaire asks for data describing your computer services business activity for calendar year 1977. The data will be held confidential, and will be used to produce an overall industry analysis for the industry and for the financial community.

A) GENERAL INFORMATION

1. If the information given in this questionnaire does not apply to calendar year 1977, please indicate the applicable time period.

mo.	yr.			to	mo.	yr.

2. In what year did you enter the computer services business? 19

--	--
3. What were your **total** 1977 computer services revenues? \$

--	--	--

 .

--	--

 millions
4. If any of your 1977 computer services revenues were obtained from your parent company or other captive sources, please give the amount of these revenues. \$

--	--	--

 .

--	--

 millions
5. a.) What percent of outside commercial computer services revenues were derived from non-U.S. locations?

	1976			1977		
Canada			%			%
Europe			%			%
Other			%			%

- b.) What were the 1977 computer services revenues of non-consolidated foreign affiliates? \$

--	--	--

 .

--	--

 millions
6. How many employees did you have as of the end of your last fiscal year?

--	--	--	--	--

B) FINANCIAL PERFORMANCE (Please indicate any declines with a minus (—).)

1. What percent revenue growth did you forecast for 1977 vs. 1976?

--	--

 %
2. What percent revenue growth did you actually attain for 1977 vs. 1976?

--	--

 %
3. What percent revenue growth do you forecast for 1978 vs. 1977?

--	--

 %
4. What percent annual revenue growth do you forecast for the next 5 years?

--	--

 %
5. Please indicate as a percent of revenue your profit before taxes and extraordinary items: for 1977

--	--

 %
for 1976

--	--

 %

(If you do not wish to provide an exact figure, please indicate the nearest 5% increment, e.g., 5%, 10%, 15%, etc.)

C) COMPUTER SERVICES REVENUE ANALYSIS

1. Please analyze your company's 1977 U.S. computer services revenues and indicate appropriate percentages.

Product Category	Definition	Percent of Total	Estimated Growth '77 vs. '76	Forecasted Growth '78 vs. '77							
PROCESSING	<ul style="list-style-type: none">You supply the processing and applications software for:										
General Business	<ul style="list-style-type: none">— Business applications which are common to users across industry categories such as payroll, accounts receivable	<table border="1"><tr><td></td><td></td><td></td></tr></table> %				<table border="1"><tr><td></td><td></td></tr></table> %			<table border="1"><tr><td></td><td></td></tr></table> %		
Scientific and Engineering	<ul style="list-style-type: none">— Scientific and engineering applications which are common to users across industry categories	<table border="1"><tr><td></td><td></td><td></td></tr></table> %				<table border="1"><tr><td></td><td></td></tr></table> %			<table border="1"><tr><td></td><td></td></tr></table> %		
Industry Specialty	<ul style="list-style-type: none">— Applications which are unique to a specific industry such as medical or banking	<table border="1"><tr><td></td><td></td><td></td></tr></table> %				<table border="1"><tr><td></td><td></td></tr></table> %			<table border="1"><tr><td></td><td></td></tr></table> %		
Utility	<ul style="list-style-type: none">You provide access to a computer with basic software. Includes raw time, data base management services, COM, and data entry services	<table border="1"><tr><td></td><td></td><td></td></tr></table> %				<table border="1"><tr><td></td><td></td></tr></table> %			<table border="1"><tr><td></td><td></td></tr></table> %		
SOFTWARE PRODUCTS											
Applications Packages	<ul style="list-style-type: none">Software to serve user functions such as accounting, scheduling.	<table border="1"><tr><td></td><td></td><td></td></tr></table> %				<table border="1"><tr><td></td><td></td></tr></table> %			<table border="1"><tr><td></td><td></td></tr></table> %		
Systems Packages	<ul style="list-style-type: none">Software to enable the system to perform basic functions. Includes compilers, sorts, data base management software.	<table border="1"><tr><td></td><td></td><td></td></tr></table> %				<table border="1"><tr><td></td><td></td></tr></table> %			<table border="1"><tr><td></td><td></td></tr></table> %		
PROFESSIONAL SERVICES											
Custom/Contract Software	<ul style="list-style-type: none">Developed for each client.	<table border="1"><tr><td></td><td></td><td></td></tr></table> %				<table border="1"><tr><td></td><td></td></tr></table> %			<table border="1"><tr><td></td><td></td></tr></table> %		
Consulting, Education, Training	<ul style="list-style-type: none">Services to upgrade, or enhance clients' EDP staffs.	<table border="1"><tr><td></td><td></td><td></td></tr></table> %				<table border="1"><tr><td></td><td></td></tr></table> %			<table border="1"><tr><td></td><td></td></tr></table> %		
TOTAL (Processing, Software Products, Professional Services)		100%									

2. Facilities Management

What percent of the above processing revenues come from long-term (more than one year) contracts, under which you manage all or part of the client's data processing function?

--	--

 %

What is the estimated growth in this category? 1977 vs. 1976?

--	--

 %
1978 vs. 1977?

--	--

 %

3. Specialty Application Products

What are the three main specialty application products you offer?

a.) _____ b.) _____ c.) _____

and identify the percent of revenues each represents.

a.)

--	--

 % b.)

--	--

 % c.)

--	--

 %

D) MINICOMPUTER/MICROCOMPUTER IMPACT

1. How many mini/microcomputers are/will be installed by your company at client locations in
1977

--	--	--	--

 1978

--	--	--	--

 1979

--	--	--	--

2. Do you now have computer services business which is vulnerable to replacement by mini/micros?

Yes ☐ No ☐

Explain: _____

What percent of your total business is vulnerable?

--	--	--

 %

E) INDUSTRY MARKETS

Please indicate approximate revenues derived from the following industry sectors:

INDUSTRY	% of 1977 Revenues	Growing in Importance	
		Yes	No
Discrete Manufacturing	_____ %	_____	_____
Process Manufacturing	_____ %	_____	_____
Transportation	_____ %	_____	_____
Utilities	_____ %	_____	_____
Banking and Finance	_____ %	_____	_____
Insurance	_____ %	_____	_____
Medical	_____ %	_____	_____
Education	_____ %	_____	_____
Retail	_____ %	_____	_____
Wholesale	_____ %	_____	_____
Federal Government	_____ %	_____	_____
State and Local Government	_____ %	_____	_____
Services (CPAs, Lawyers, etc.)	_____ %	_____	_____
Other (Please identify) _____	_____ %	_____	_____
	_____ %	_____	_____
Total	100%		

F) BUSINESS ENVIRONMENT AND FUTURE PLANS:

1. Please list the major competitive or economic events that you feel affected the computer services industry either positively or negatively during 1977 and what you anticipate will be the comparable events in 1978? For example, privacy and security, IBM actions, distributed processing, or recession.

1977	1978

2. What is your approximate number of total customers?

--	--	--	--	--

What % of total computer services revenues do your five largest customers represent?

--	--	--	--

 %

G) EXPENDITURE ANALYSIS

1. Please estimate the percent distribution of your annual expenditures arising from your computer services business.

**% of Total
1977 Expenditures**

Direct personnel compensation (including salaries, commissions, payroll taxes, etc.)

Total marketing and sales staff	<table border="1"><tr><td></td><td></td></tr></table> %		
Research and applications development	<table border="1"><tr><td></td><td></td></tr></table> %		
Operations	<table border="1"><tr><td></td><td></td></tr></table> %		
Other	<table border="1"><tr><td></td><td></td></tr></table> %		

Personnel-related expenditures (inc. voicephone, travel & living, office supplies, etc.)

--	--

 %

Computer system equipment and maintenance (inc. interest, depreciation, property taxes, etc.)

--	--

 %

Data Communications expenditures (inc. interest, depreciation, property taxes, etc.)

--	--

 %

Freight and postage

--	--

 %

Payments to third-party software developers

--	--

 %

Advertising, promotion, seminars, etc.

--	--

 %

Facility Operations (rent, utilities, etc.)

--	--

 %

Other (inc. interest on nonequipment loans, state and federal taxes, etc.)

--	--

 %

Total

1	0	0
---	---	---

 %

2. Please indicate any extraordinary gains or losses in 1977 as a percent of total expenditures.

Extraordinary gains

--	--

 %

Extraordinary losses

--	--

 %

Thank you for your participation.

APPENDIX D: REPLY FORM

REPLY FORM

TO: USERS OF THE 1978 ADAPSO ANNUAL REPORT

To help us continue improvement of the Annual Report series, please complete this form and return it to me.

1. Please rate the sections of the report. (5 = excellent, 0 = poor)

Section	Rating		Comments
	Clarity	Accept-ability	
Executive Summary			
Industry Performance			
Overall			
Industry			
Timely Issues			
Computer Services Markets			
Vendor Performance			
Appendix			

2. The report has several objectives. Please rate how well it succeeded. (5 = excellent, 0 = poor)

	Rating
Provides a basic reference source on size, profits, and growth of the industry	_____
Is easy to read and use	_____
Individual companies can compare performance to the industry	_____
Is a tool for use in planning	_____
Is a tool for financial analyses	_____
Is timely	_____

3. If you have used earlier ADAPSO Annual Reports, please compare this report to the earlier reports: _____

4. Please comment on the overall 1978 Report, including suggestions for the 1979 Report: _____

Please return to: Jerry Dreyer
ADAPSO
210 Summit Avenue
Montvale, NJ 07645

